

## Chapter 4-Additional Product and Waste Information

**4.1 Booth compound and masking aid:** Booth compound is a liquid that is applied to the interior surfaces of a spray booth to absorb paint overspray. It is either peeled or hosed off when it becomes dirty. According to IOSHA standard 1910.107(b)(2) Interiors: the interior surfaces of spray booths shall be smooth and continuous without edges and other wise designed to prevent pocketing of residues and facilitate cleaning and washing without injury. 1910.107(b)(3) states: The floor surface of a spray booth and operator's working area, if combustible, shall be covered with noncombustible material of such character as to facilitate the safe cleaning and removal of residues.

A similar compound, used as a masking aid and sometimes referred to as slime, is used to cover portions of the vehicle that are not to be painted. Most booth compounds dry quickly because they contain solvents, such as alcohol. These solvents pose a fire hazard as well as an inhalation hazard, and can also cause skin irritation. Once dried, the hazards are greatly diminished. In the liquid stage, however, you need to take precautions to keep booth compound away from open flames or sparks, prevent inhalation of the vapors, and contact with the skin.

If the **masking aid** (slime) is hosed off, the contaminated wastewater may pose a problem for your sewage treatment plant. You will need to check with them before sending any of this wastewater to the sewage system. See chapter 4. **Specialized compounds** used on floors prevent dust particles from becoming airborne. These compounds often have a flash point near 110 degrees F., posing a fire hazard, and causing the waste to be hazardous due to ignitability. Check your MSDS for information on your product flash point.

### **You must:**

- Store containers according to the Department of Fire and Building Services' (FBS) combustible/flammable liquid standards and IOSHA 1910.106(d).
- Keep open flames or sparks away from the area until the liquid has thoroughly dried.
- Provide employees with gloves and/or coveralls to prevent compounds from contacting bare skin, along with safety eyewear. According to IOSHA 1910.132 PPE.
- Make a hazardous waste determination on the waste and manage it accordingly. See chapter 3, for information on making a hazardous waste determination or run a lab test to determine the level: either a TCLP metals test, or a total metals test (and then extrapolate to the equivalent TCLP value.)
- Dispose of unused liquid with a flash point below 140 degrees F. as a hazardous waste (ignitable). See Section 3 for information on managing hazardous waste. In addition to the requirements in 2, you must also mark the drum with the Flammable Liquid label, and the D001 waste code. – NO LIQUID WASTE IN TRASH.
- Used booth compound and/or masking aid may be a hazardous waste if contaminated with lead-based paint or with paint containing significant concentrations of chromium, barium, cadmium or other toxic metals.

**Our typical collision repair and automotive refinishing shop generates fewer than 220 pounds of masking aid/compounds per month. Therefore the waste can be disposed of with the regular trash.**

**If you generate more than 220 pounds per month of peeled masking aid waste, you may need to make a hazardous waste determination. If this is considered to be non-hazardous, it can go directly to the dumpster as a non-hazardous solid waste.**

**Wastewater:**

- If you plan to discharge slime contaminated wastewater to your local water treatment plant, you must contact them to ensure they will accept this waste. See the Wastewater Section in Chapter 4 for more information.
- If hosing off, and your shop drains do not go to a wastewater treatment plant, you must obtain an NPDES permit (see Wastewater Section in Chapter 2.3.)
- If you have a holding tank that is periodically pumped and sent to a wastewater treatment facility, be sure the treatment facility approves of having paint solids present. See: holding tank rules, wastewater section, Ch. 2.3.
- If your shop generates more than 220 pounds of this peeled coating waste per month, the waste may be regulated and must be managed accordingly. Or the waste may be unregulated and can go in the dumpster as solid non-hazardous waste.

**You should:**

- Completely use all the products you purchase, rotate stock, and order only as much as you need so you can avoid disposing of unused materials.
- Reduce or eliminate use of paint products containing toxic metals.
- Reduce or eliminate use of masking products with a flash point below 140 degrees F.

**4.2 Catalysts / hardeners / activators:** For most products in this category, the primary hazard relates to flammability since flash points are frequently well below 140 degrees F. Storage and handling requirements are very strict, from IOSHA, (910.107 (e) and the Department of Fire and Building Services.

The solvent content of these products may also pose a respiratory hazard during mixing or spraying. The hardeners contain isocyanates, which can pose a more significant respiratory hazard. Check the material safety data sheet for respirator usage.

**You must:**

- Store containers according to combustible/flammable liquid standards see section 3.3 and 3.4.
- Keep open flames or sparks away from the area until thoroughly dry.
- Provide employees with gloves and other protective clothing.
- Determine the exposure level to the hazardous solvents or isocyanates during mixing or spraying. Provide proper respiratory protection and training, as needed see 5.1 and attachment on Respiratory Protection).
- Keep containers closed at all times. You cannot leave containers open to evaporate

excess material as a way to reduce the amount of waste generated. Doing so is a violation of IDEM, IOSHA, and Fire Marshal rules.

- Manage the waste as an ignitable hazardous waste, mark the drum with the D001 waste code and the Flammable Liquid label. See Section 2.5.2, for more information. You may solidify very small quantities of this liquid waste with a sorbent. The result is a solid waste that is not ignitable, not hazardous, and can be disposed in your regular trash provided the waste contains no characteristic toxic metals (such as lead, chromium, or cadmium) or toxic solvents (such as MEK or chlorinated solvents.) Most catalysts, hardeners or activators do not contain these ingredients. Solidifying ignitable wastes actually increases the amount of solid waste you generate, so should only be utilized if you only generate very small amounts and it would take you a very long time to accumulate a drum of paint waste to ship out.

**You should:**

- Order only the products you need.
- Rotate stock to avoid having to dispose of products that have deteriorated.
- Use hardeners without isocyanates whenever possible.
- Avoid making larger batches than needed for the job.
- Offer leftover mixes to customers for touch-ups, when possible.

**You should consider:**

- Using a computerized mixing system to reduce paint leftovers.
- Utilizing low-VOC products, even if your shop is not required to do so.

**4.3 Chemical strippers:** Three types of strippers are commonly used among collision repair and automotive refinishing shops: methylene chloride, solvent blends, and caustics. The most prevalent paint stripper is **methylene chloride**, a colorless liquid that can cause skin irritation and, upon inhalation, cause mental confusion, light-headedness, vomiting, and headache. Long-term exposure to methylene chloride exposure has been shown to cause cancer. Because of the methylene chlorides serious health effects, IOSHA established a rule specifically for this chemical.

Strippers made of **solvent blends** (such as a combination of acetone, toluene, and methanol) usually have a low flash point, and must meet the flammable/combustible liquid storage and handling requirements (see Section 3.3). Solvent blends can be harmful to skin and can present inhalation hazards; therefore, the proper chemical resistant gloves are required, and respiratory protection may be necessary. These solvents are an ignitable hazardous waste when disposed of.

The main concern with **caustic** chemical strippers is contact with the skin. Proper personal protective equipment is required to prevent employee injury, as this material is corrosive.

For most collision repair and automotive refinishing shops, the use of chemical strippers is infrequent and involves only a small area of the vehicle and, therefore, only small amounts of stripper. Exposure is not likely to be above the permissible exposure level (PEL), since this 25-ppm limit is based on an 8-hour day average. Contact IOSHA for more information on the methylene chloride requirements.

Monitoring employee exposure is the only way to determine the actual exposure level and whether the IOSHA requirements are applicable to your shop. The easiest option is to choose other means of paint removal, and totally eliminate the use of methylene chloride.

**You must (for methylene chloride):**

- Perform employee exposure monitoring to determine your employee's exposure level.
- Use methylene chloride only in a designated, restricted access area.
- Have employees wear supplied air respirators, and any employee exposed more than 10 days per year must have medical surveillance if the exposure level is above the PEL (25 ppm for 8 hours) or STEL (125 ppm for 15 minutes).
- Ensure that employees wear chemical resistant gloves, eyewear and aprons, when using methylene chloride, manage any unused material you are going to dispose of as a hazardous waste, and mark the drum with the U080 waste code. See Section 3.5 for more information.
- Handle methylene chloride-contaminated disposable wipes and sorbents as a hazardous waste (waste code F002). See the Wipes section in Chapter 4 for information on handling laundered cloth wipes.

**You must (for solvent blend chemical stripper):**

- Keep containers closed, clearly labeled, and make sure they do not leak.
- Have your employees wear chemical resistant gloves, aprons, and safety eyewear while using the solvent blend.
- Determine if respirators are required. They may not be required if the blend is used in a well-ventilated area or outdoors.
- Store containers according to combustible/flammable liquid standards (see 3.3).
- Handle any unused material you are going to dispose of as an ignitable hazardous waste and mark the drum with the D001, F001, F003 or what ever applies to this waste stream, as the appropriate waste code, and the Flammable Liquid label. See for more information. **Note:** Disposable wipes used with a solvent blend stripper may be a hazardous waste, depending upon the percentage of the various solvents in the blend. See the Wipes section in Chapter 4 for information regarding laundered cloth wipes. If your chemical stripper is caustic, you must:
  - ✓ Ensure containers are closed, and not leaking
  - ✓ Clearly label the containers and include the corrosive warning label
  - ✓ Ensure your employees wear chemical resistant gloves, aprons, safety eyewear while using the stripper.
  - ✓ Make a hazardous waste determination on caustic stripper you dispose of and manage accordingly.

- Mark the drum with the D002 waste code and the Corrosive label. See Section 3 for more information on managing hazardous wastes if the pH is less than 2.0 or greater than 12.5. However, it is unlikely that your stripper will have an extreme pH such as this. **Note:** Disposal wipes used with a caustic type stripper are not a hazardous waste. Employers are required to have an eye wash station or a quick drench station available in the immediate work area where there are corrosive materials being used. See IOSHA standard 1910.151(c), medical and first aid Subpart K.

**You should:**

- Reduce your usage of chemical strippers.
- Find an alternative to disposal, such as giving any unused stripper to an industry that uses the same material. Because of the hazards associated with the various types of strippers, it is best not to give it to homeowners or other non-industrial users. You could potentially be liable for their mishandling and resulting injuries.
- Buy only the products you need.
- Rotate stock to avoid having to dispose of products that have deteriorated.

**You should consider:**

Contracting out any chemical stripping to a facility that specializes in that service.

**4.4 Cleaners/degreasers:** Cleaners and degreasers are used to remove oils, fingerprints, bugs, tar, and other contaminants from the vehicles prior to refinishing. Products used for this purpose can range from petroleum solvent or alcohol-based degreasers to water-based cleaners or even household powdered cleanser. In Clark, Floyd, Lake, and Porter counties, the VOC content of the cleaners and degreasers is limited. See Chapter 2.4.1 for details.

**Hazards and rules:** For solvent products, the primary hazard is flammability, since flash points are frequently well below 140 degrees F. Storage and handling requirements are very strict, from both IOSHA (1910.106 (e)(2), and the Fire Marshal. See 3.3 for more information. These solvent-based degreasers may also contain additional chemicals, such as xylene or toluene that may pose a respiratory hazard during use. Check your MSDS to determine if such chemicals are present, and the percentage in the mixture, and the PPE recommended.

Disposable wipes contaminated with some of these wastes may be a listed hazardous waste (see chapter 4). For water based cleaners and degreasers, there is no flammability hazard, but some may have a pH that makes them somewhat acidic or caustic, requiring your employees to wear chemical resistant gloves, and eyewear during use. They usually are not a hazardous waste.

**You must (for solvent-based cleaners/degreasers):**

- Store containers according to combustible/flammable liquid standards (see Section 3.3).
- Keep open flames or sparks away from the area until thoroughly dry.
- Provide employees with gloves and other protective clothing.

- Determine the exposure level to the hazardous chemicals (such as xylene or toluene) and provide proper respiratory protection and training, as needed (see -on Respiratory Protection).
- Keep containers closed at all times. You cannot leave containers open to evaporate excess material as a way to reduce the amount of waste product you have to dispose of. Doing so is a violation of IDEM, IOSHA, and Fire Marshal rules.
- Treat unused, waste material as an ignitable hazardous waste. You must:
- Mark the drum with the words HAZARDOUS WASTE, and the date the drum was filled (Assuming satellite accumulation. Otherwise, you must mark the date waste was first put into the drum). See Section 3.4 for more information.
- Mark the drum with the D001 waste code.
- Mark the drum with the Flammable Liquid label.
- Keep containers closed.
- Conduct weekly inspections to check for leaks or drum deterioration.
- Manifest the waste, use a hauler with an EPA I.D. number, and send to an approved Treatment, Storage and Disposal facility (TSDF) (See section 3.5).

NOTE: Disposable wipes used with a solvent having a concentration of solvents that meet the criteria of a listed hazardous (F-listed waste) or are characteristically hazardous (D001-flammable) may be a hazardous waste. See the section on wipes for handling of laundered cloth wipes.

For water based cleaners/degreasers, you must provide your employees with chemical resistant gloves and eyewear, if the cleaner is one with a caustic or acidic pH (check the MSDS). An eyewash station or quick drench station is required in all areas where there are corrosive materials being used.

**You should:**

- Order only the products you need.
- Rotate stock to avoid having to dispose of product that has deteriorated.
- Use as little solvent based cleaners/degreasers as possible.

**You should consider:**

- Using only water-based, non-caustic cleaners and degreasers.

**4.5 Dust and debris (from grinding / sanding):** Grinding and sanding produce dusts that can be inhaled, and also cause noise. PPE includes respirators, eye protection, ear plugs. Proper ventilation is required, based on the type of material being grinded.

The primary hazard with grinding and sanding is the potential for inhaling the irritating dust. If the material being sanded has toxic metals, such as a lead based paint, the dust may not only be an irritant, but may also pose hazards due to the presence of the toxic metal dust, according to IOSHA regulation 1910.94 under Occupational Health and Environmental Control.

Good ventilation and management practices that keep the dust from being inhaled are the most effective means of protecting your employees. If your shop grinds or sands old vehicles with lead paint on a regular basis, these employees may be exposed to lead dust above acceptable levels. In this case, the full IOSHA lead standard applies, which requires regular exposure monitoring, extensive engineering controls to reduce lead levels, respiratory protection, and regular employee blood testing.

Because our typical collision repair and automotive refinishing shop does not routinely encounter lead based paint, the details of the lead standard are not included in this manual. For additional information, contact the Bureau of Safety Education and Training (BuSET) with the Indiana Dept. of Labor 317/232-2688.

Dust and debris may be a hazardous waste if there are high enough concentrations of lead, chromium, or other toxic metals in the material being sanded. Again, our typical collision repair and automotive refinishing shop does not routinely work with paints with high toxic metals content, so there is not likely to be a hazardous waste dust generated.

**You must:**

- Wear eye protection such as goggles and/or face shields, when working in grinding and sanding operations.
- Use practices, which reduce the amount of dust in the air. A common method is vacuum/exhaust systems hooked directly to the sander or grinder exhaust. Vacuum/exhaust systems should be at each workstation.
- Adequate ventilation to move dust and debris away from the worker (but NOT into another employees breathing area).
- Determine the level of airborne contaminants, after above-listed controls are implemented.
- If measures such as vacuums or ventilation do not control the dust below the IOSHA PEL, you must implement a respiratory protection program. (See 1910.94 on respiratory protection).
- Determine whether toxic metals are present in the dust and debris in high enough concentrations to require implementation of the full Lead dust IOSHA standard, or for it to be a hazardous waste. (Testing such as TCLP for metals or total metals may be necessary if you frequently sand or grind materials that have lead or chromium based paints. If you rarely encounter such materials, you can use your generator knowledge to determine that your waste dust and debris would not contain toxic concentrations and, therefore, is not a hazardous waste.) Call CTAP for guidance.
- Determine the amount of total dust and debris from sanding/grinding that you generate in a month. If your entire shop generates 220 pounds or more of non-hazardous sanding and grinding dust/debris in a month, you may want to call your local landfill for advise on disposal according to their guidelines.
- Determine the noise level your employees are exposed to during operation of the sander, grinder, and any exhaust equipment. If the decibel level is above the IOSHA Action level of 85 Decibels according to the noise regulations of IOSHA 1910.95. You must take measures to lessen the noise level through equipment modifications, whenever possible. If equipment modifications do not result in lowering the decibels,

you must provide hearing protection for your employees and implement a hearing conservation program.

- Wear personal protective clothing (i.e., eyewear, goggles, clothing, and respirator if needed).

**You should:**

- Segregate your sanding/grinding dust and debris from other waste streams.
- Have all your dust and debris that is automatically vacuumed away go to a dust collector or cyclone to keep it from dispersing in the outside air.
- Have your employees wear ear plugs/other hearing protection whenever sanding or grinding (or working in the vicinity of these operations) even if the Action level is not exceeded.
- Do sanding and grinding only in areas separate from any flammable materials, such as paints or solvents.

**You should consider:**

- Using sander and grinders with their own automatic vacuum exhaust system, even if the amount of dust you generate is below the IOSHA acceptable dust level.

**4.6 Noise control:** IOSHA regulation on Occupational Noise 1910.95 defines the Action level for noise is 85 Decibels for 8 hours of work per day. Dosimeters are instruments that gauge noise levels, and your worker comp carrier should be able to do a series of readings for you. Similarly, there are occupational therapists and consultants who can provide this service, as well as industrial hygienists from BuSET Div. of IOSHA, based on your written request.. A quick way to determine if your shop might exceed 85 dba is that if you have difficulty hearing or understanding someone near you who is talking at normal conversational tone, the noise level likely exceeds the 85 dba Action Level. For the full hearing protection requirements to be applicable, this 85-dba level needs to continue for an 8-hour period. If this level of noise is only sporadic and short-lived, as it is for our typical collision repair and automotive refinishing shop, the full requirements of the hearing protection rule may not apply. The hearing protection rule requires regular hearing tests for employees working in the noisy areas as well as engineering controls (i.e., mechanical methods) to reduce the noise level, providing proper personal hearing protective devices, such as ear plugs, to employees. For details on the full requirements of the Hearing Protection rule, contact BuSET. It is recommended that, even if the noise level in your shop does not reach the Action Level of 85 dba, you provide earplugs or other protective devices for your employee's comfort.

**4.7 Aerosol containers:** Aerosol sprays contain a liquid or gaseous propellant that is packed under pressure. Many of the propellants used in aerosol containers are highly flammable and potentially explosive. Because of this, they should not be heated or stored in direct sunlight. When incinerated, aerosol containers may explode, releasing the propellant and any remaining product, and scattering small pieces of sharp metal.

The hazards and impacts vary depending upon the product within the aerosol can. Some products contain hazardous materials, which may be corrosive or poisonous, or may form



a toxic gas when heated. Aerosol containers emit chemicals in a mist of fine particles that are easily inhaled and absorbed into the bloodstream. Thus, a chemical that may be harmless in its liquid or solid form may be extremely dangerous as an aerosol mist.

**Regulatory overview:** Empty aerosol containers may be sent to a scrap metal recycler for recycling. Containers that are totally empty are not considered to be a hazardous waste and may be disposed with your regular trash. An aerosol container is considered to be empty when the pressure in the container approaches atmospheric pressure (i.e., nothing comes out of the can when the nozzle is not clogged and is pressed). Note that a clogged can still contains materials, it is not considered to be empty. If you dispose of cans that are not empty, you must make a hazardous waste determination and manage the cans accordingly.

**You must:**

- Ensure that your aerosol cans are either totally empty or significantly empty prior to sending them to a scrap metal recycler.
- Ensure that your aerosol cans are totally empty prior to disposing of them.
- Puncture and drain the container if the can no longer has a sufficient amount of propellant to force the product out. The product drained from the punctured container must be used for its intended purpose or characterized to determine if it is a hazardous waste. Be sure to use the products MSDS sheet to familiarize yourself with its hazards prior to puncturing and draining the container. Also ensure that appropriate personal protective equipment (e.g., safety glasses and gloves) is worn during this process.
- Make a hazardous waste determination on the container and the remaining product, and manage it accordingly.

**You should:**

- Ensure that the caps of aerosol containers are in place when containers are not in use. This will reduce the possibility of damage to the spray nozzle.
- Use the remaining product for its intended purpose if the can is not empty.
- Recycle your empty aerosol cans (call 800/988-7901).

**You should consider:**

- Purchasing products according to need rather than purchasing bulk quantities. Products that are not used before their shelf life expires must be disposed, sometimes as a hazardous waste. The disposal cost will often exceed the purchase price of the item.
- Using products on a first-in, first-out basis. This will reduce the potential of products becoming a waste because its shelf life expired before it could be used.
- Issuing products to each service technician and requiring that they turn in an empty aerosol container before receiving a replacement container. This type of system will ensure that technicians do not misplace a product, open a new product, and allow the misplaced product shelf life to expire before it can be used. This type of system will also allow you to identify technicians using a large volume of a given product and work with them to ensure the product is being used properly.

- Purchasing products in reusable pump spray, roll-on, liquid, or non-aerosol spray applicators. Aerosol cans are generally used for convenience, but are generally no more effective than products that are applied by pouring, wiping or brushing.

**4.7.1 Empty product cans/containers:** If properly emptied, product containers do not pose a hazard and can be disposed with your regular trash. (See section on Aerosol cans in Chapter 4 for information specific to them). In order to be considered empty for EPA and IDEM rules, the container must be emptied as much as possible by the usual means, such as pouring or pumping out so that all liquid is removed. It is not necessary to wipe the cans clean, but you must remove all liquid before sending the can to the landfill. Paints and other solvent-containing product containers are not to be left with the lids off because doing so increases air emissions and presents a fire hazard.

The Department of Transportation (DOT) hazardous materials regulations exempt paint or solvent containers only if they have been rinsed to remove any residue, or if the residue has been rendered non-hazardous. (Paints and solvents normally used by collision repair and automotive refinishing are DOT hazardous materials because they are flammable liquids). An easy way to render the residue-containing empty cans non-hazardous is to add kitty litter or other absorbent to the empty can before disposal. Talk with your waste hauler to see if they require it, or have other requirements. Many do not even require the addition of the kitty litter to the empty cans as long as there is no liquid remaining, utilizing the DOT exemption for ORM-D materials. ORM-D class materials present a limited hazard during transportation due to their form, quantity and packaging.

Empty containers are exempt from the hazardous waste requirements, provided they meet the EPA and IDEM definition of Empty (i.e. as much material removed as can be removed through pouring or pumping), and have no more than 1 inch or 3% by weight of residue remaining. So, basically, if you do everything you possibly can to empty the container, you can dispose of the container in your regular dumpster. If you have material in the bottom of a paint or solvent container that cannot be used, you will need to put that leftover amount in your paint waste drum for disposal as a hazardous waste, because Auto Refinishing current paint formulations would be an ignitable hazardous waste when disposed of.

**You must:**

- Empty the container as much as possible by pouring, pumping, or suctioning.
- Dispose properly any excess material that could not be used (i.e. paints or solvents need to be added to your paint waste drum).
- Ensure there is less than 1 inch, or 3%, of residue remaining in bottom of container.
- Determine if your waste hauler has special requirements before they will take empty containers in your regular trash.
- Not leave cans of flammable products or solvents open to evaporate excess liquids.

**You should:**

- Add kitty litter or other clay based absorbent to containers that still contain a slight residue of flammable product, such as paints, thinners, and other solvents.

- Recycle any plastic or metal containers that contained non-hazardous materials (such as water based cleaners). NOTE: paint cans will not be accepted by recycling centers.
- Use as much of the product as possible in your operation so you don't have much excess to add to your paint waste drum before disposing of the container.
- Make sure your waste drums that are being re-used for accumulation of waste material, are appropriate for also shipping out the waste material in. There are DOT requirements as to what type of drums you use to ship waste in and, the ones that are empty may be "single trip containers" (STC), or have a deposit on them, and are not the correct type to use for shipping out waste. Section 49 of the Code of Federal Regulations (49 CFR) governs the transportation and packaging of hazardous waste for over the road transporting, section 172.101.

**4.8 Empty drums:** The most frequent empty drums generated by collision repair and automotive refinishing shops are from gun washing solvent and reducer/thinner, or those used for storage of paint waste. These empty drums present the same challenges as empty product cans, plus a few more. You still must empty the drum as much as possible and ensure that less than 1 inch, or 3%, of material remains as residue. In addition, drums that have contained flammable liquids may have sufficient vapors to still create a significant fire hazard and must be stored, as you would full drums. Another challenge is finding a home for the drums once you are finished with them, as some of them are single trip containers (STC) and can not be re-used for shipping hazardous waste, so therefore must go for disposal. Most trash haulers will not accept drums, and landfills frequently have special requirements or additional fees. One option is to reuse your empty thinner or solvent drums for storing and shipping your hazardous paint waste, as long as they are not single trip containers, but you must be sure the drum is in good condition, and all old labels are removed. If you have sufficient drums for waste paint, you can send your drums to a drum recycler or reconditioner, as long as they are not single trip containers. They will thoroughly clean and paint any drums that are still in good condition and will recycle any drums that are suitable for reconditioning. Drum recyclers or reconditioners usually will only take drums that have been rinsed out so there is no product remaining in them. If you find a reconditioner that will take unrinsed drums, DOT rules require you to ship the empty drums with a properly completed bill of lading, just as if they were full of the hazardous material, but marked with the words "residue" in the description, and on the drums above the original labels.

Sometimes shops let employees or other people take empty drums for personal use. **This is strongly discouraged because you leave yourself open to a great deal of liability by doing so.** If someone is injured as a result of use or misuse of the drum, you could find yourself at fault.

Drums that have contained flammable materials may cause fires or explosions, or children may become ill from playing around drums that contained chemicals. For many shops, paint waste drums can also present a challenge. If your vendor accepts your paint waste and the drum, they will take care of disposing of the drum as well. But if your vendor simply extracts the paint from your drum into their tanker, you will reuse the drum over and over. This may result in a gradual build up of paint solids in the bottom of

the drum, which could easily exceed the 1-inch or 3% rule. Check with your local solid waste disposer to see if they will take them for disposal.

**Regulatory overview:** If you have a drum with more than 1 inch or 3% residue remaining after emptying, you must determine if the drum and its residue are a hazardous waste. Paint solids are not considered to be ignitable hazardous waste because they are not a liquid, and the solids do not meet the criteria for ignitable solids. However, paint solids could be a characteristic hazardous waste if the paints contain lead, chromium or other toxic metals, or if the solids contain levels of MEK, or chlorinated solvents above regulatory limits. You can either run a TCLP test for metals, MEK and chlorinated solvents, or use your material safety data sheets (MSDS) to determine if the toxic metals or toxic TCLP solvents are present in your paints. Another option if metals are possible (but won't help with solvents) is to run a total metals test and then do a calculation to estimate TCLP values. This is not a hard and fast method and only is valid in certain circumstances. Call CTAP, your testing lab, or IDEM's Office of Land Quality for assistance). If your paints do not have toxic metals or toxic TCLP solvents, you can use this knowledge to determine that the paint solids would not be a characteristic hazardous waste. If any of your paints do contain toxic TCLP ingredients, however, it is possible that the paint solids might exceed regulatory limits and therefore be a hazardous waste. Then you would need to have a lab perform either the total metals or TCLP test to determine if the limits were exceeded.

**You must:**

- Empty the drums as much as possible by typical means such as pouring, pumping or suctioning.
- Properly dispose of any excess material (e.g., leftover thinner or solvents need to be added to your paint waste drum).
- Ensure there is less than 1 inch, or 3%, of residue remaining in bottom of drum, unless you are willing to abide by hazardous waste rules.
- Determine if the residue is a hazardous waste if there is more than 1 inch or 3% remaining.
- Not leave drums of flammable products or solvents open to evaporate.
- Properly dispose of your empty drums, such as through a drum recycler or reconditioner. (If there is no drum recycler near you, check with your waste hauler and landfill to determine if they will accept clean empty drums.) If they are single trip containers, they must go for disposal.
- If your drum recycler/reconditioner accepts unrinsed drums, mark drums with residue, along with original identifying markings, when you ship them. The bill of lading will need to be completed with the same hazardous materials information as if the drums were filled. (DOT rule)
- Not use a cutting torch or saw to cut into drums that contained solvents or other flammable materials, unless the vapors are purged by rinsing with water several times or injecting an inert gas into the drum. (Rinse water that contains solvents may not be accepted by your sewer plant; call to check before you let such rinse water go to the sewer. This rinse water also cannot go to a septic system or to the ground.)
- Store empty drums that contain flammable vapors according to same fire code

standards as when the drums were full.

- Not discard empty drums along roads, parks, or any place other than with a proper recycler, reconditioner, or landfill.

**You should:**

- Regularly have your paint waste drum disposed of along with the paint waste itself so you do not accumulate more than 1 inch or 3% of paint solids.
- Not give or sell empty chemical or solvent drums to employees, neighbors, etc.

**4.9 Gas tanks:** Damaged gas tanks pose a nuisance, as they contain flammable liquids and/or flammable vapors. Because of these hazards, many vendors will not accept gas tanks, making their disposal especially problematic. Tanks that have been properly prepared for disposal do not present a regulatory hurdle for vendors, and should be accepted by them.

**Regulatory overview:** IDEM, IOSHA, and the Department of Fire and Building Services may regulate gas tanks. IDEM regulates flammable liquids, which are considered to be a characteristic waste due to their flammability (contains Benzene). IOSHA requires that gas tanks be properly drained and ventilated in order to ensure a safe workplace for employees. Likewise, FBS also regulates the handling and storage of gas tanks in order to ensure there is no fire hazard.

**You must:**

- Properly prepare gas tanks for disposal by taking the following steps:
  - ✓ Drain the tank
  - ✓ Remove the tank from the automobile
  - ✓ Place the tank in a well-ventilated area of the shop, (or submerge the tank in a drum of water) then remove the drain plug and/or the pump and filter to allow adequate ventilation. Two days is usually sufficient to ventilate a tank. The use of dry ice can assist in ridding the vapors from a tank.
  - ✓ Send the tank to a scrap yard or disposal facility.
- Ground and bond the tank prior to draining it (if you must remove the tank prior to draining it). See Subpart H- of IOSHA regulations on Hazardous Materials, sources of ignition for information on grounding and bonding. (IOSHA 1910.106(e)(6)(ii))

**4.10 Filler /putty:** For most products in this category, the hazards relate to their flammability, since flash points are frequently well below 100 degrees F, and respiratory or skin irritation hazards are due to solvent content and exposure. Both IOSHA and the Fire Marshal regulate storage and handling requirements.

The solvent content of these products may also pose a respiratory hazard during the application process. The composition of the filler or putty will vary by manufacturer and type of filler. Some of the common solvents or hazardous ingredients are styrene, xylene, methyl ethyl ketone or toluene. Check the MSDS for your products to determine the hazardous ingredients, and what types of PPE are required.

It is unlikely that putties will be a hazardous waste when you dispose of them. They are not a liquid, and do not meet the criteria for ignitable solid, so would not be an ignitable hazardous waste. Those that contain methyl ethyl ketone (MEK), however, may possibly be a characteristic hazardous waste, but most putty does not contain enough MEK to exceed the regulatory limits. If your putty has a high percentage of MEK in its formulation, call CTAP for assistance in determining if it may exceed the TCLP limit that would make it a hazardous waste.

Liquid fillers have a flash point below 140 degrees F and would be a hazardous waste if you disposed of them. You can add them to your paint waste drum. Another option, though not a sound practice unless very small quantities are involved, is to solidify the liquid with kitty litter or other clay-based absorbent so there is no liquid, and no ignitable solid hazardous waste. Then this waste would not be a hazardous waste, and can be disposed in your regular trash (unless you generate more than 220 pounds of such solidified waste in a month. This ability to solidify the product to render it non-hazardous ONLY applies if there are no characteristic toxic metals (such as lead, chromium, or cadmium) or toxic solvents (such as MEK or chlorinated solvents) present in the filler. Solidifying ignitable wastes actually increases the amount of solid waste you generate, so should only be utilized if you only generate very small amounts and it would take you a very long time to accumulate a drum of paint waste to ship out.

**You must:**

- Store containers according to combustible/flammable liquid standards (see 3.3).
- Keep open flames or sparks away from the area until thoroughly dry.
- Provide employees with gloves and other personal protective equipment
- Determine the exposure level to the hazardous solvents during application. Provide proper respiratory protection and training, as needed (see IOSHA regulation 1910.134 on Respiratory Protection).
- Keep containers closed at all times. You cannot leave containers open to evaporate excess material as a way to reduce the amount of waste product you have to dispose of. Doing so is a violation of IDEM, IOSHA, and Fire Marshal rules.
- Treat liquid waste material as an ignitable hazardous waste

**You must:**

- Mark the drum with the words HAZARDOUS WASTE, and the date the drum was filled (Assuming satellite accumulation. Otherwise, you must mark the date waste was first put into the drum). See Section 3.4 for more information.
- Mark the drum with the D001 waste code.
- Mark the drum with the Flammable Liquid label.
- Keep containers closed.
- Conduct weekly inspections to check for leaks or drum deterioration.
- Manifest the waste, use a hauler with an EPA I.D. number, and send to an approved Treatment, Storage and Disposal facility (TSDF) (See section 3.5). TSDF.
- Treat your liquid or putty waste that contains high concentrations of MEK or chlorinated solvents, as a characteristic toxic waste. Contact CTAP for guidance.
- Only use solidification with kitty litter or clay absorbent if your liquid waste is

hazardous ONLY because of its flash point (under 140 degrees F).

**You should:**

- Order only the products you need.
- Rotate stock to avoid having to dispose of product that has deteriorated.
- Only use solidification with kitty litter or clay absorbent if you generate very small amounts of ignitable hazardous waste.

**You should consider:**

- Not using solidification with kitty litter or clay absorbent as an option

**4.11 Solvents:** The regulations that you must follow depend on which type(s) of solvent and pre-cleaner(s) you are using. Listed below are the types of solvents generally used by vehicle maintenance shops and an overview of the hazards and regulations associated with each. Refer to the sections that follow this introduction, Petroleum-Based Solvents and Aqueous-Based Solvents, for more information on the type of solvent used by your shop.

Petroleum-Based Solvents (mineral spirits)

New/virgin petroleum-based solvents are classified according to their flash point. The term “flash point” refers to the temperature at which a material could ignite if exposed to a spark. Materials with a low flash point (100-140 degrees F) will ignite more easily than materials with a higher flash point (140-200 degrees F.)

- Low-Flash Solvents (100-140 degrees F.)

Petroleum-based solvents with a flash point from 10-140 degrees F. are also referred to as “low-flash solvents.” This type of solvent is a fire hazard and will be an ignitable hazardous waste and, possibly, a toxic hazardous waste when disposed. Solvents of this type are subject to IOSHA, DOT, Department of Fire and Building Services and IDEM requirements.

If your shop uses a solvent with a flash point of less than 110 degrees F, be aware that the Department of Fire and Building Services prohibits the use of this type of solvent for cleaning floors or walls. This type of solvent may be used for parts washing only if used in a special, closed machine that is specifically approved for parts washing. The parts washing machine must be located in a separate, well-ventilated room constructed in accordance with the provisions of the Building Code for a Group H occupancy. Contact the Plan Review Division of the Department of Fire and Building Services for more information.

- High-Flash Solvents (140-200 degrees F)

Petroleum-based solvents with a flash point from 140-200 degrees F are also referred to as “high-flash solvents, or combustible solvents.” Used high-flash solvent is not considered to be an ignitable hazardous waste unless it is contaminated and its flash point drops below 140 degrees F.

Be aware that many high-flash solvents have a flash point that is only slightly above the 140 degrees F threshold for this group of solvents. If you use pre-cleaners that contain flammable materials, your used high-flash solvent may become a low-flash solvent (i.e., an ignitable hazardous waste) that is subject to more stringent regulations. In addition to potentially being an ignitable hazardous waste, a used high-flash solvent may also be a toxic hazardous waste if contaminated to the extent that it exhibits hazardous waste characteristics.

#### Aqueous (water) Based Solvents

Aqueous-based solvents are generally less toxic alternatives to petroleum-based solvents. The detergent used for aqueous parts washing may be an acid, alkaline or a citrus-based solution. Some aqueous systems use microbes to eat the oil and grease that accumulate in the cleaning system.

Aqueous parts washers may be in the form of heated parts washing sink, an immersion tank, or a high-temperature spray cabinet. A high-temperature spray cabinet is similar to a large dishwasher in that it combines heat, soap and spraying action to clean dirty parts. This type of unit is available in various sizes, with the larger units having ample capacity for cleaning large parts.

Because aqueous-based solvents are generally non-hazardous, employee exposure to hazardous materials is reduced. Shops that use a high-temperature spray cabinet also benefit because the cabinet does the work of cleaning the part, allowing the employee to place the part in the cabinet and return to working on the vehicle.

If you are considering switching to an aqueous-based cleaner, be aware that some aqueous cleaners will cause the parts to rust, requiring that the parts be treated after they are cleaned.

Also be aware that used aqueous-based solvents may be a toxic hazardous waste if they are contaminated to the extent that they exhibit hazardous waste characteristics or are contaminated with a listed hazardous waste. Potential contaminants include oil and grease, lead, chromium, cadmium, and any pre-cleaners used by your shop.

#### Chlorinated solvents

Using chlorinated solvents can lead to significant compliance work for your shop. The best option is to avoid using this type of solvent. As mentioned in Chapter 4, chlorinated solvents are outside of the scope of this manual. Chlorinated solvents include the following:

- chlorobenzene (monochlorobenzene or benzene chloride)
- trichloroethylene (trichloroethane, ethanol trichloride)
- chlorinated fluorocarbons
- methylene chloride (dichloromethane, methylene dichloride, methylene



- bichloride)
- tetrachloroethylene (perchloroethylene, ethylene tetrachloride, tetrachlorethylene)
- 1,1,1-trichloroethane (methyl chloroform, chlorothene)

Check the product label or your MSDS sheets for these chemicals. If you are using any of them, IOSHA and IDEM air regulations will apply. Hazardous waste regulations may also apply.

**4.11.1 Gun washing solvent:** Gun washing solvents are usually petroleum-based solvents that may contain additional hazardous solvents such as toluene or methyl ethyl ketone (MEK). Some older formulations may contain chlorinated solvents, such as trichloroethylene or tetrachloroethylene, but these are rare. Check the MSDS on your gun washing solvent. In Clark, Floyd, Lake or Porter counties there is no limit on the VOC content of the gun washing solvent, but shops are required to use enclosed gun washers.



For gun washing solvent, the primary hazard is flammability since flash points are frequently well below 100 degrees F. Storage and handling requirements are very strict, from both IOSHA, 1910.107(e), and the Fire Marshal's office.

Additionally, the presence of hazardous ingredients, such as xylene, toluene, chlorinated solvents, or MEK, may pose a respiratory hazard during use. Check your MSDS to determine if such chemicals are present, and their percentage in the mixture, and determine if employee exposure is high enough to require respiratory protection. (See IOSHA regulation 1910.134 on Respiratory Protection.)

Dispose of used solvent as a hazardous waste, which can go into your paint waste drum. Not only is used gun washing solvent a characteristic ignitable hazardous waste (D001-Flammable), but it may also be a listed hazardous waste (if MEK or chlorinated solvents are present in high enough concentrations to flunk TCLP) and/or a listed hazardous waste (with an F code) if the toluene, MEK or xylene concentration in the solvent before it's used, is greater than 10%. Disposable wipes used to wipe down the spray gun after it has been cleaned in the gun washing solvent, will be a hazardous waste (with an F code) if the solvent before use has greater than 10% concentration of xylene, toluene, or methyl ethyl ketone (MEK). Call CTAP for guidance. Also, see the section on wipes for handling of laundered cloth wipes (generally not a hazardous waste).

**Use of solvent recycler:** If your shop uses a solvent recycler to recover usable solvent for your gun washer, you will generate less waste for disposal, but you still must count the solvent you run through the recycler as hazardous waste generated that month. You may become a Conditional Exempt Small Quantity Generator (CESQG). Your hazardous waste generator status is based on how much hazardous waste you generate each month, not how much you ship off site for disposal. However, all the dirty solvent you generate in a month and then recycle is only counted once. But when a new month starts, that first

batch of dirty solvent you generate will again be counted. For example, let's say you generate a drum of gun solvent each week and you recycle it as soon as the drum gets full. The first week of the month, you will count that drum - plus any hazardous solids or still bottoms that have been accumulated after recycling - towards the amount of hazardous waste you generate that month. Continuing with this same example, you take this recycled solvent back to use again. At the end of the 2nd week of the month, you have another drum of dirty solvent to be run through the recycler. You do NOT have to count this drum of dirty solvent in your calculation of how much hazardous waste you generate that month but you do have to count the hazardous still bottoms or solids in the bottom of the recycler. The same thing applies the next week if you use the same recycled solvent. You won't count the waste solvent again until the next month. At the start of the next month, you'll start your count all over again.

Let's try a different scenario. Let's say you still generate one drum of waste solvent per week, but rather than recycle the dirty solvent each week and reuse it, you get another empty drum and wait until you have 3 drums of dirty solvent to run through the recycler. Even though you physically use the same amount of solvent, you will now generate 3 drums of hazardous waste in the month because you stored the extra drums of dirty solvent rather than recycling the first one and reusing that same solvent over again in that month. By waiting to recycle your solvent you have tripled the amount of gun solvent hazardous waste you generate, which could easily put you in a higher generator status.

Solvent recyclers also will produce a sludge that may or may not be a hazardous waste. The sludge or residue from your recycler will NOT be a hazardous waste if:

- The gun washing solvent is composed of only petroleum distillates, and no listed solvents, then the D001 flammability applies. If the F003 solvents are greater than 10% or more (by volume) of one or more of the solvents listed as F001, F002, and F005, or the still bottoms from the recovery of these spent solvents and solvent mixtures are present in the virgin solvent, then they also have to be listed and accounted for.
- The solvent does not contain MEK, or chlorinated solvents that may remain in the sludge, and make it a listed hazardous waste (f listed).
- The residue is dry enough that no liquid would flow through a paint filter; and the paints you use do not contain toxic metals such as lead, chromium, or cadmium.

The sludge or filter cake residue from your recycler WILL be a hazardous waste if:

- The gun washing solvent before you used it, contains 10% or greater of toluene, xylene, or methyl ethyl ketone (MEK); or
- The sludge is thin and would release liquid through a paint filter; or
- The concentration of toxic metals or toxic solvents (MEK, or chlorinated solvents) in the sludge or filter cake is above the regulatory limits. If several of your paints have lead, chromium or cadmium in them, the concentrated solids may have higher levels than what is in the paint in its pure form. You will need to run a TCLP laboratory test, or total metals test and then extrapolate the result to a TCLP equivalent (contact CTAP for guidance).

**You must:**

- Store containers according to combustible/flammable liquid standards (see Section 3.3).
- Keep open flames or sparks away from the area until thoroughly dry.
- Provide employees with gloves and other personal protective equipment.
- Determine the exposure level to the hazardous chemicals (such as xylene, MEK, or toluene) and provide proper respiratory protection and training, as needed .(see Respiratory Protection).
- Keep containers closed at all times. You cannot leave containers open to evaporate excess material as a way to reduce the amount of waste product you have to dispose of. Doing so is a violation of IDEM, IOSHA, and Fire Marshal rules.
- Treat unused, waste material as an ignitable hazardous waste.
- Mark the drum with the words HAZARDOUS WASTE, and the date the drum was filled (Assuming satellite accumulation. Otherwise, you must mark the date waste was first put into the drum). See Section 3.4 for more information.
- Mark the drum with the D001 waste code, and use the flammable liquid label.
- If the fresh solvent has MEK or chlorinated solvents in it above TCLP concentrations, the waste will also have to carry the characteristic waste codes.
- Keep containers closed.
- Conduct weekly inspections to check for leaks or drum deterioration.
- Manifest the waste, use a hauler with an EPA I.D. number, and send to an approved Treatment, Storage and Disposal facility (TSDF) (See section 3.5).
- Treat used solvent as a listed hazardous waste; if the fresh solvent contains greater than 10% of toluene, MEK, or xylene, ALSO add the F waste code. (The exact F code will depend upon which of the hazardous ingredients was present in the fresh solvent at greater than 10%).
- Add the appropriate characteristic waste codes if the solvent has MEK or chlorinated solvents above TCLP levels.
- Use an enclosed gun washer if your shop is located in Clark, Floyd, Lake or Porter counties.
- Not spray solvent through the spray gun, into the air, if your shop is located in Clark, Floyd, Lake or Porter counties.
- Make a hazardous waste determination on the solids that is extracted from the dirty solvent if you recycle (distill) your used solvent on-site. Since paint solids are concentrated in this residue, the lead or other toxic metals may be more concentrated and therefore, possibly, a characteristic hazardous waste. It depends upon the heavy metal content of your paints. If the residue is thin and would pass through a paint filter, it would likely be an ignitable hazardous waste. Also, if your solvent contains greater than 10% of toluene, MEK, or xylene, your distillation or recycling residue would be a hazardous waste with an F code. Call CTAP for guidance.
- Count the dirty solvent you generate each month before it's recycled if you recycle (distill) your used solvent on-site. (If you recycle the solvent and reuse it in the same month, you only count the FIRST time it was generated that month). It is the amount of hazardous waste you generate per month - not what you ship out - that determines whether you are a Conditionally Exempt Small Quantity Generator [if you generate

less than 220 lbs. total of all your hazardous wastes], a Small Quantity Generator [generate between 220-2200 lbs. of hazardous wastes per month], or Large Quantity Generator [generate more than 2200 lbs. per month of hazardous waste]. See Chapter 2 for details.

- Meet the following IOSHA and Fire regulations if you recycle (distill) your used solvent on-site:
  - ✓ The unit must be accessible from at least one side for fire control purposes.
  - ✓ The unit must be separated from the rest of the shop by a wall with a 2-hour fire resistance rating.
  - ✓ The area in which the recycler is located must have a drain to direct flammable liquids to a safe location.
  - ✓ If the drainage system is connected to a sewer system it must have a trap or oil/water separator.
  - ✓ The area must be ventilated to prevent a build up of flammable vapors.

Disposable wipes used to wipe down the spray gun after it has been cleaned in the gun washing solvent, will be a listed waste (with an F code) if the wipe has solvent greater than 10% concentration of xylene, toluene, or methyl ethyl ketone (MEK). It could also be a characteristic hazardous waste if the solvent has a flash point greater than 140 degrees F. (D001) or solvents above TCLP thresholds. See the section on wipes for handling of laundered cloth wipes (generally these are not a hazardous waste).

#### **You should:**

- Use a gun washing solvent that does not contain hazardous ingredients (such as xylene, toluene, chlorinated solvents or methyl ethyl ketone (MEK)).
- Use a gun washing solvent with a flash point above 140 degrees F.
- Only use as much solvent as necessary.

#### **You should consider:**

- Using an enclosed gun washer, to save solvent and reduce air emissions, even if your shop is not located in Clark, Floyd, Lake or Porter counties.
- Using a solvent recycling service to recover usable gun washing solvent. You can contract with a service that will come on-site and recycle your solvent on the premises. You will still be the generator of all of the waste material, but you will not have to construct a separate room as you would with a purchased recycler.

**4.11.2 Aqueous-based solvents:** Aqueous (water) based cleaners are generally less toxic alternatives to petroleum-based solvents. Unlike petroleum-based solvents, there are generally no hazards or adverse impacts associated with the base materials found in aqueous-based solvents. These solvents are made up of water and detergent, which may be an acid, alkaline or a citrus-based solution.

Because the hazards and impacts of a given product will vary depending upon the product formulation, you should check the material safety data sheet (MSDS) to determine if a specific aqueous-based solvent is hazardous to human health and/or the environment.

**Additives and contaminants:** Used aqueous cleaners can contain a number of contaminants, including oil and grease, lead, chromium, cadmium, and any pre-cleaners used by your shop. The oil and grease may emulsify (i.e., break down into small globules) in heated and mechanically agitated parts washing systems. The result is that the oil and grease may be more difficult to separate from the used cleaning solution, potentially resulting in contamination levels that do not meet publicly owned treatment works (POTW) limits.

Both lead and chromium are frequently used as coatings on metal parts. A thin layer of these coatings may wash off when the parts are cleaned, leaving contaminants in the used solvent. High levels of these heavy metals may make the used solvent a hazardous waste. Pre-cleaners are another source of contamination to your used aqueous solution. If your pre-cleaners contain any chemicals that are on the list of listed hazardous wastes, your used solvent will automatically be a hazardous waste. Used solvent that exhibits a hazardous waste characteristic will also be a hazardous waste.

**Regulatory overview:** Depending upon the type and level of contamination, your used solvent may be unacceptable for discharge to your local POTW or may be a hazardous waste. Note that, if you wish to discharge your aqueous cleaning solution, your shops drain should be connected to a POTW. For information on discharging your used solvent, see the Wastewater section in Chapter 2. For information on making a hazardous waste determination and managing hazardous waste, see chapter 3.

**You must:**

- Make a hazardous waste determination and manage your used aqueous solution accordingly.
- Not discharge your used aqueous solution unless you are connected to a POTW or a holding tank or unless your shop has an NPDES permit. If you are discharging to a POTW, you must ensure that the discharge meets the effluent limits set by the POTW. See the Wastewater section in Chapter 2 for more information.
- When transporting solvent, label the shipment to meet DOT requirements. Follow the DOT regulations that are appropriate for the material using the 49 CFR part 172.101, for guidance.

**You should:**

- Reduce the amount of contaminants in your used aqueous solution by doing the following:
- Use high quality (i.e., soft) water in your aqueous cleaning machine. Hard water requires that you use more detergent in order to effectively clean parts, resulting in more contaminated wastewater.
- Pre-clean parts prior to washing them. Much of the dirt and oil may be removed by draining, wiping with a shop towel, or by scraping or wire brushing.
- Substitute less toxic precleaners for those that contain hazardous and/or toxic constituents, if you must use pre-cleaners.
- Use a detergent that is a good cleaner, but a poor emulsifier (i.e., does not break oil

and grease down into small globules.) Oil and grease that is not broken down will separate from the aqueous cleaning solution and can then be removed using an oil skimmer. See the Used Oil section in Chapter 4 for information on managing this oil.

- Allow your heated aqueous solution to cool prior to discharging it. The emulsified oil and grease should separate from the cleaning solution as it cools. Remove the oil and grease using an oil skimmer.
- Replace your aqueous solution before it exceeds your POTW's discharge limits.
- Reduce the amount of solids in your used aqueous solution by filtering the solution as it is discharged.

Note: These practices may extend the life of your aqueous solution and/or help keep your used solution within your POTW's discharge limits.

#### **You should consider:**

- Purchasing an aqueous parts washer that is equipped with a skimmer and a timer.

**Background on options to consider:** Purchasing an aqueous parts washer with a skimmer and a timer will provide your shop with several benefits. First, the timer will allow you to automatically turn the washer's heater unit on and off at certain times each day. Turning the heat off at the end of each day not only saves energy, but also allows the aqueous solvent to cool and the oil and grease to separate. The timer can then schedule the skimmer to remove the oil and grease that has risen to the top of the solvent. Frequent skimming of these contaminants will keep your solvent at its peak operating efficiency. Finally, the timer can be set to automatically turn the heater unit back on so that the solvent is ready to use at the beginning of each work day.

**4.11.3 Petroleum based solvents:** Petroleum-based solvents (naphtha or mineral spirits) are widely used in solvent sinks to remove soils and oily residues from automotive parts. Petroleum-based solvents with a flash point between 20 and 140 degrees F, are ignitable. These solvents won't normally ignite, but may do so if they are heated and/or exposed to an open flame or electrical spark.

In addition to being ignitable, some types of petroleum-based solvents may irritate the eyes and skin and can affect the central nervous system if inhaled or absorbed through the skin. Petroleum-based solvents contain volatile organic compounds (VOCs), which contribute to the formation of ozone, a toxic component of urban smog and a contributor to lung damage in children, asthma sufferers and the elderly.

**Additives and contaminants:** Many shops use supplemental cleaning products to pre-treat carbon deposits and other heavy soils. These cleaning products typically contain ignitable and/or chlorinated solvents such as methanol, propane, xylene, methylene chloride, trichloroethane and/or tetrachloroethylene. The use of these products may cause your used solvent to be a hazardous waste or a listed waste due to toxicity as well as ignitability.

In addition to pre-cleaners, used solvent may be contaminated with lead and/or chromium, which are frequently used as coatings on metal parts. A thin layer of these

coatings may wash off when the parts are cleaned, leaving heavy metals in the used solvent.

**Regulatory Overview:** Under IDEM's air regulations, all shops that use petroleum-based solvents in an immersion cleaning machine (solvent sink) or in a remote reservoir cleaning machine (part sprayer), must follow specific work practices to limit the amount of volatile organic compounds (VOCs) entering the air. These work practices are listed in the "You Must" section that follows.

IDEM's air regulations also restrict the type of parts washing solvent that may be used in Lake, Porter, Clark and Floyd Counties. These rules, which will be phased in over an eighteen-month period beginning November 1, 1999, require that solvents have a vapor pressure not to exceed two millimeters of mercury (2.0 mm Hg). Beginning May 1, 2001, solvent vapor pressure must not exceed one millimeter of mercury (1.0 mm Hg). Additional information is provided in the "You Must" section that follows.

Under IDEM's hazardous waste rules, used petroleum-based solvent with a flash point below 140 degrees F is hazardous waste due to ignitability. The term "flash point" refers to the temperature at which a material could ignite if exposed to a spark. Used petroleum-based solvents with a flash point above 140 degrees F, are not regulated as a hazardous waste due to ignitability, but may be a hazardous waste due to toxicity depending upon the level and type of contamination.

Note that, if your shop is classified as a CESQG, disposing of more than 30 gallons of hazardous waste in any one calendar month will change your hazardous waste generator status classification from CESQG to SQG. If your used petroleum-based solvent is determined to be a hazardous waste, you may easily move into the SQG classification when you change out your parts washer. Parts washers typically contain between 19 and 27 gallons of used solvent, making the amount of hazardous waste very near the 220 pounds per month threshold for SQGs.

Many vendors have begun continued use programs. Under such a program, the vendors directly reuse their customers' solvents without first treating or recycling the solvents. Under a continued use program, the vehicle maintenance shop using the solvent does not generate a waste and, therefore, does not need to count the solvent toward their generator status or make a hazardous waste determination on the solvent. See chapter 2 for information on making a hazardous waste determination.

**You must:**

- Not use gasoline as a solvent. [IOSHA]
- Use the solvent in a special closed machine approved for parts washing if your solvent has a flash point less than 140 degrees F. A machine of this type must be Universal Laboratories (UL) approved for flammable substances and equipped with a wire (to hold the lid open) and a fusible link, which will automatically close the unit in the event of a fire. [Department of Fire and Building Services]
- Not use liquids with a flash point less than 140 degrees F for cleaning floors or walls.

[Department of Fire and Building Services]

- Ensure that the connections on all drums are sufficiently tight that they do not allow vapor or liquid to escape. [IOSHA]
- Clean up all spills of petroleum-based solvents promptly. [IOSHA]
- If you use petroleum-based solvents in immersion cleaning machines (solvent sinks) or in a remote reservoir cleaning machine (part sprayer) you must:
  - ✓ Keep your solvent tank covered when not in use to prevent evaporation.
  - ✓ Place a drain shelf in the basin of the parts washer. This shelf allows solvent to drain back into the solvent tank.
  - ✓ Drain all parts for at least fifteen (15) seconds or until part is no longer dripping.
  - ✓ Store used solvent to be disposed in tightly covered or closed containers.
  - ✓ Ensure that a permanent label summarizing the above work practices is affixed to the inside cover so it is readily visible to employees using the machine. If your machine does not come with a label, contact the manufacturer or your solvent supplier to obtain one.
  - ✓ If you are located in Lake, Porter, Clark or Floyd counties, you must use solvent with a vapor pressure at or below two millimeters of mercury (2.0 mm Hg). Beginning May 1, 2001, solvent vapor pressure must not exceed one millimeter of mercury (1.0 mm Hg).

Date	Vapor Pressure Limit
November 1, 1999	two millimeters of mercury (2.0 mm Hg)
May 1, 2001	one millimeter of mercury (1.0 mm Hg)

These restrictions apply when solvent is sold to an individual or business in amounts greater than five (5) gallons during any seven consecutive business days.

Beginning November 1, 1999, users of these lower vapor pressure solvents must also keep a record of each purchase, including the following information:

- Name and address of the solvent supplier.
- Date of purchase, the type of solvent.
- Volume of each unit.
- Total volume of the solvent and vapor pressure of the solvent.

A fact sheet providing more details on this regulation may be obtained by visiting IDEM's web site at [www.IN.gov/idem/air/](http://www.IN.gov/idem/air/). You may also call CTAP at 800/988-7901 for assistance.

- Make a hazardous waste determination on your used petroleum-based solvent and manage it accordingly (see Chapter 3 for more information.) Note that your used solvent may be a hazardous waste because it is ignitable. It may also be a toxic hazardous waste depending upon the contaminants in the used solvent.



- When transporting solvent with a flash point of 140 degrees F or lower, label the shipment to meet DOT requirements.

**You should:**

- Store new petroleum-based solvent in sealed containers until ready for use.
- Preclean parts using a cleaning process that does not involve hazardous solvents, such as manually cleaning the part with a wire brush..
- Reduce the amount of solvent used by replacing solvent only when necessary. The shop employees who regularly use the solvent should be able to tell when the solvent begins to lose its effectiveness and needs to be changed. Test kits are available to help you make this determination.
- Skip having one of the tanks serviced while replacing solvent for the other washer as usual if you use two solvent tanks. Designate the parts washer with contaminated solvents for precleaning dirty parts and reserve the parts washer with new solvent for final cleaning. If your shop is a CESQG, having only one of your tanks serviced may have the added benefit of keeping your shop in the CESQG classification. Your shop may also need to limit the amount of hazardous wastes generated from other sources in order to remain below the 220-pound threshold.
- Keep solvent and other wastes separated so that they can be recycled or properly disposed (adding a waste to a hazardous waste will increase the amount of hazardous waste that you generate).

**You should consider:**

- Purchasing or leasing a solvent sink with a filter unit that will extend the life of your solvent by filtering out contaminants.
- Using non-hazardous cleaning methods, such as an aqueous parts washers.

**Purchasing or leasing a solvent sink with a filter unit:** Some of the newer solvent sinks have filter units that extend the life of the solvent by filtering out contaminants. Dirty solvent passes through the filtering unit where contaminants are removed, and clean solvent is returned to the reservoir for reuse.

The type and location of the filters on the solvent sink vary depending upon the type of filtration system used. Some of the more commonly employed filtration systems are:

- Side-mounted disposable fabric filter units, which remove primarily particulate;
- Cyclonic filter units that use centrifugal force “cyclonic action” to remove solids. The solvent passes through a filtering unit where a spinning action takes place, causing the solids to settle out and allowing the clean solvent to be reused.
- Clay-containing filter units that are placed in the solvent reservoir or in the wash basin to remove primarily oil and grease.

Remember that a hazardous waste determination must be performed on the used filters prior to disposal.

**4.11.4 Antifreeze:** The main component in most antifreeze is ethylene glycol (or less

toxic propylene glycol), which is toxic to humans and deadly to small animals. Because ethylene glycol has a sweet taste that may attract unsuspecting animals or children, it is important that you properly handle, store, and dispose of antifreeze.

**Additives and contaminants - hazards and impacts:** In addition to ethylene glycol (or propylene glycol), virgin antifreeze also consists of corrosion inhibitors and foam controllers. Used antifreeze may also contain heavy metals and other contaminants that are picked up as antifreeze circulates through the engine, particularly in older vehicles that have metal radiators with soldered joints.

**Regulatory overview:** Under Indiana's hazardous waste rules, ethylene glycol and propylene glycol (i.e., virgin antifreeze) are not listed hazardous wastes. However, as mentioned above, contact with cooling system parts may cause used antifreeze to become contaminated with heavy metals, such as lead and cadmium. This contamination may make the antifreeze a hazardous waste. Similarly, used antifreeze that is mixed with other wastes (during storage, etc.) may result in a mixture that is a hazardous waste.

Each shop is responsible for making a hazardous waste determination on its used antifreeze. This determination can be based on analytical test results of the used antifreeze, or it may be based on the knowledge of the waste and how it was generated and managed. IDEM has reviewed data on used antifreeze (both ethylene glycol and propylene glycol-based) from a broad range of vehicle types and ages. The results of this data indicated that used antifreeze does not appear to exhibit the characteristics of a hazardous waste. However, you may generate antifreeze that is a hazardous waste if your shop:

- Generates used antifreeze primarily from older vehicles (i.e., vehicles with metal radiators and lead-soldered joints.)
- Generates a type of antifreeze other than traditional ethylene glycol or propylene glycol-based antifreeze.
- Mismanages its used antifreeze after it has been drained from the vehicle (i.e., if you mix it with hazardous wastes or other contaminants.)

**Management responsibilities:** Regardless of whether or not your used antifreeze is a hazardous waste, there are some regulations you must follow. If your used antifreeze is considered to be a hazardous waste, you must manage it according to the Hazardous Waste Rules. Listed below are the management options that you must follow. Also listed are suggested practices that you should follow in order to ease your regulatory requirements and improve the environmental health of your shop.

**You must (for antifreeze that is non hazardous):**

- Not pour antifreeze onto the ground or into streams.
- Not discharge used antifreeze to your Publicly Owned Treatment Works (POTW) without first checking with the POTW to determine if they allow such discharges.
- Not discharge antifreeze to a septic system if doing so will harm the waters of the state of Indiana. Note that, if your used antifreeze is determined to be a hazardous waste, you must not discharge it to a septic system or to the environment.

- Make a hazardous waste determination on the filters and sludge, or you may simply treat them as hazardous wastes if you recycle your antifreeze on-site. Because the contaminants are concentrated in the filter and/or sludge, it is likely that these may be hazardous wastes.

**You must (for antifreeze that is hazardous):**

- Label all containers in accordance with RCRA requirements. Remember to clearly mark the words "HAZARDOUS WASTE" as well as the date the waste began to accumulate (or the date the container was completely filled if you have a satellite accumulation area) on the used antifreeze container. See Section 3.4 for more information.
- Keep storage containers closed to prevent evaporation and spills.
- Conduct weekly inspections to ensure that the containers are in good condition. Look for leaks and for deterioration caused by corrosion or other factors. If a container leaks, put the hazardous waste or the leaking drum in another container.
- Keep monthly records of the amount of used antifreeze that you accumulate (see chapter 4 when transporting antifreeze that is considered to be a hazardous waste due to lead-contamination, label the shipment as follows: [DOT]

“Lead compounds, soluble, n. o. s., 6.1, UN2291, PGIII, Keep Away From Food”

Note that whenever an, “ n o s.” is part of a shipping name, the description must be immediately followed by a list of ingredients which, produce the hazard.

- Manifest drums of used antifreeze to a TSD facility (see Section 3.5.) if hazardous.
- Use only waste transporters that have obtained an EPA identification number to transport drums of antifreeze off site.

**You should:**

- Store new antifreeze in a sealed container and keep it out of reach of animals or children.
- Reduce the amount of antifreeze used by replacing antifreeze only when necessary. Visually check for contaminants, and test for freeze point and pH. Fresh antifreeze or corrosion inhibitors can be added to adjust these parameters if necessary.
- Reuse good antifreeze that is removed from a vehicle in order to make repairs. Save the antifreeze in a clean container and reuse it in the vehicle after the repairs have been made.
- Handle antifreeze carefully to avoid spills. Use catch trays or pans to contain spills. Clean up any spills immediately. See the section entitled, 'In Case of a Spill' for information on whom to contact in the event of a spill and cleanup procedures.
- Keep the antifreeze from older vehicles separate from the antifreeze removed from newer vehicles if your shop works on a large percentage of older vehicles (i.e., those with metal radiators and lead soldered joints) and does not recycle its antifreeze. You should make a hazardous waste determination on antifreeze removed from older vehicles or simply manage it as a hazardous waste.
- Keep used antifreeze separated from other materials such as used oil or solvent.

Mixing these materials may make them non-recyclable, or may make the mixture a hazardous waste.

- Recycle your used antifreeze by contracting with a service company to do the recycling or by purchasing equipment to recycle used antifreeze in your shop.
- Store antifreeze that is hazardous and is being sent off-site for recycling or disposal in a DOT-approved container. You should also label all containers in accordance with DOT requirements. Note that you will be required to do both of these things prior to shipping your hazardous waste off site.

**You should consider:**

- Providing secondary containment such as a diked or bermed area to assist in the recovery of any spilled material.
- Contracting with a service company to recycle your used antifreeze (either on- or off-site).
- Purchasing equipment to recycle used antifreeze in your shop.

Information on these antifreeze-recycling options is provided below. Note that, whether you choose to contract with a service company or purchase equipment to recycle your antifreeze, you must follow all of the steps listed in the "You Must" section above.

**Background on options to consider:** If you are considering recycling your own antifreeze or having an antifreeze recycling company provide you with recycled antifreeze, be aware that many vehicle manufacturers are endorsing their own specific antifreeze formulations and using these formulations in their new vehicles. Replacing the original antifreeze with anything other than the same formulation may violate a vehicles warranty. Similarly, recycling an antifreeze formulation generally voids its original warranty (some of the newer formulations have a 5-year warranty.) Depending upon the make and year of the vehicles your shop generally services, you may have limited opportunities to use recycled antifreeze. Weigh this consideration when deciding whether to purchase your own recycling equipment or to contract with a service company.

**Purchasing recycling equipment:** You may purchase antifreeze-recycling equipment to do your own recycling on-site. The following two models of antifreeze recycling equipment are available:

**Closed-loop/on-vehicle model**

The Closed-loop/on-vehicle models are equipped with hoses that attach directly to the vehicle in order to flush the cooling system, recycle the antifreeze and replenish the cooling system. The advantage to this type of system is that the used antifreeze is contained during each step of the process, thereby reducing the possibility for improper handling and storage. Note that closed-loop systems may also be used to recycle antifreeze that will be stored for later use. The disadvantage of this type of system is that the antifreeze is typically recycled through filtration or deionization, which do not remove most dissolved contaminants.

#### Batch system/off-vehicle model:

The second model is the batch system or off-vehicle model that requires that the service technician handle the antifreeze during each step of the process (i.e., drain the antifreeze, pour it into the recycling unit, and then replenish the vehicle.) These types of systems may recycle the antifreeze by filtration or distillation. Distillation units remove suspended solids as well as dissolved contaminants.

**Contracting with a service company to recycle your used antifreeze:** Contracting this service to an outside company has certain advantages over purchasing your own equipment. First, contracting this service does not require the initial capital expense of purchasing a recycling unit. Secondly, the filters and sludge that are generated during the recycling process may be hazardous wastes. If you recycle on-site, you must make a hazardous waste determination and manage the waste accordingly. If you contract this service to an outside company that recycles your used antifreeze off-site, they will be responsible for the hazardous waste generated during the recycling process.

**On-site recycling:** Using an on-site mobile antifreeze recycling service involves having a recycling service visit your shop with a mobile coolant recycling unit. Note that your shop will be responsible for any hazardous waste generated as a result of on-site antifreeze recycling. Spent filters and sludge may potentially be hazardous wastes.

**Off-site recycling:** Another option is to send your used antifreeze off-site for recycling with a reputable recycling company. You may store your used antifreeze on-site for later pick-up. Recycling companies usually require a minimum pickup quantity of 50-55 gallons and, in addition to picking up used antifreeze, can also supply your shop with recycled antifreeze.

#### **Notes about antifreeze recycling:**

- Check vehicle manufacturers' warranties prior to using recycled antifreeze.
- Chemical additives must be added to the recycled antifreeze prior to its reuse in a vehicle. Recycling equipment vendors provide these additive packages.
- The use of recycling equipment will generate potentially hazardous wastes such as spent filters or sludge. These byproducts should be presumed to be a hazardous waste unless representative sampling is conducted to determine that they are not.

**4.12 Interior pieces-(seats, dashboards, etc.):** The primary hazard with vehicle interior pieces is the possibility of cuts from sharp edges, or back injuries from lifting heavy items without assistance or proper equipment. There are generally no chemical hazards or hazardous wastes generated. Some switches, however, may contain mercury, which would make them a hazardous waste when disposed of. Such switches can be recycled, however, which is a much responsible way of handling them. Contact CTAP or your local solid waste management district for information. Also use safe work practices when handling the switch so as not to release the mercury, and have employees wear chemical resistant gloves. Mercury can be absorbed into the blood stream through the skin. In addition, inhalation of mercury vapor can be dangerous. It is extremely unlikely that our

typical collision repair and automotive refinishing shop would handle enough mercury to exceed exposure limits, but your employees need to be alerted the possible hazard.

Deflated air bags are not a hazard. The powder film that sometimes remains visible is talcum powder that is incorporated in the air bag mechanism to make sure the bag opens freely without sticking to itself.

Intact air bag systems can be a hazard if they accidentally inflate while someone is working in the car's interior and is struck by the inflating bag. Therefore, your employees need to follow the manufacturers guidelines for disabling the air bag system before they begin work on the interior of a car. The typical method involves removing the appropriate fuse and waiting a stated amount of time, such as 10 minutes, before beginning work.

Metal pieces can be recycled with your other scrap metal. Plastic, cloth, and glass pieces cannot usually be recycled, but recyclable markets may improve in the future. Pieces in good condition can be sold or given away for reuse.

**You must:**

- Protect your employees from cuts and scrapes (gloves, coveralls, etc.).
- Help prevent back injuries by training your employees in proper lifting techniques, providing lifting equipment (if appropriate), and instructing them to get a helper when lifting awkward or heavy items.
- Treat any mercury containing pieces/parts as hazardous waste.
- Utilize safe work practices when handling mercury-containing pieces/parts, and provide chemical resistant gloves.
- Disable air bags prior to working inside cars.

**You should:**

- Try to find someone who can use any interior pieces in good condition.

**4.13 Masking paper:** Masking paper in and of itself does not present hazards. If it is heavily contaminated with paint that contains significant levels of toxic metals such as lead, it may be a characteristic hazardous waste, but this is extremely unlikely. Usually there is far more clean paper after a paint job, with only a small edge closest to the painted surface having a paint layer. With the small amount of paint on the paper, the low concentration of toxic metals in the paint, and the increasing rarity of paints with any toxic metals present, it would be almost impossible for a typical Collision Repair/Auto Refinishing shop to generate waste masking paper that would be a hazardous waste.

You can gauge whether you might generate more than 220 pounds by tracking how many rolls of masking paper you use in a month. By weighing a roll of paper you can then calculate how many pounds of paper you throw out in a month. The paint overspray on the paper would not contribute significantly to the weight, but if you calculate that your shop generates over 175 pounds of waste masking paper in a month, you might be getting

close, and should actually weigh your waste paper as you generate it to make sure you haven't exceeded the 220 pound limit.

**You must:**

- Know the amount of toxic metals (lead, chromium, cadmium, etc.) in the paints you use so you can use that knowledge in helping determine if paint contaminated waste masking paper may be a characteristic hazardous waste.
- Determine if your masking paper waste is a characteristic hazardous waste due to metals content based on your knowledge, or lab testing ( i.e., if the paper would fail the TCLP test).
- Estimate the amount, in pounds, of waste masking paper you generate each month. If that amount is more than 220 pounds you must handle it as a waste.

**You should:**

- Use as little masking paper as needed to do the job, to reduce the amount of waste paper you have to throw out.

**4.14 Paint:** Paint and other coating products make up the largest volume of products (or wastes) that a Collision Repair/Auto Refinishing shop will usually have on hand. The primary hazard with paints, primers, etc. is their flammability. Many have a flash point below 100 degrees F, making them a Class I flammable liquid, which requires the greatest level of care in handling and storage.

In addition to their potential fire hazard, many paints contain hazardous ingredients, such as xylene, toluene, methyl ethyl ketone (MEK) or other solvents. Some paints also contain toxic metals such as lead, chromium, or cadmium. Depending on the concentration of these hazardous chemicals, your employees may be exposed to hazardous levels of these chemicals and may need to wear respirators during mixing or spraying operations. (See respiratory protection section of this manual to help you in determining exposure levels and appropriate actions to take.)

Paint waste will be an ignitable hazardous waste, since the flash point is below 140 degrees F. If the paint contains toxic metals, or some organics, it will also be a characteristic hazardous waste. If you mix your waste gun cleaning solvent in with your paint waste, your waste may be an F-listed hazardous waste. Having more than one waste code for your hazardous waste does not increase your generator status or require additional steps to be taken. You just need to make sure the drums of hazardous waste and the shipping manifest have all the correct waste codes listed. The number of waste codes does not usually affect the cost for disposal.

If the paint does not have toxic metals and you do not mix your F code solvent waste with your paint waste, you could solidify the liquid with kitty litter or other clay-based absorbent so there is no liquid, and it would not meet the criteria for ignitable solid hazardous waste. Then this waste would not be a hazardous waste, and can be disposed in your regular trash. This is a sound practice only when very small quantities are involved. This ability to solidify the product to render it non-hazardous ONLY applies if there are

no characteristic toxic metals or toxic solvents present in the product. While solidification is a legal option, it is not a recommended solution. Solidifying ignitable wastes actually increases the amount of solid waste you generate, so should only be utilized if you only generate very small amounts and it would take you a very long time to accumulate a drum of paint waste to ship out. Also, you can be held responsible for any damages should the solidification not be complete and the materials still present a fire hazard.

**You must:**

- Store containers according to combustible/flammable liquid standards (see 1910.107 (e)).
- Keep open flames or sparks away from the area until thoroughly dry.
- Provide employees with gloves and other personal protective equipment.
- Determine the exposure level to the hazardous solvents during mixing or spraying. Provide proper respiratory protection and training, as needed (see 1910.134 on Respiratory Protection).
- Keep containers closed at all times. You cannot leave containers open to evaporate excess material as a way to reduce the amount of waste product you have to dispose of. Doing so is a violation of IDEM, IOSHA, and Fire Marshal rules.
- Treat liquid waste material, if it exhibits the characteristic as an ignitable hazardous waste, You must:
- Mark the drum with the words HAZARDOUS WASTE, and the date the drum was filled (Assuming satellite accumulation. Otherwise, you must mark the date waste was first put into the drum). See Section 3.4 for more information.
- Mark the drum with the D001 waste code.
- Mark the drum with the Flammable Liquid label.
- Keep containers closed.
- Conduct weekly inspections to check for leaks or drum deterioration..
- Manifest the waste, use a hauler with an EPA I.D. number, and send to an approved Treatment, Storage and Disposal facility (TSDF) (See section 3.5).
- Determine if your waste contains toxic metals, such as lead, chromium, and cadmium, in concentrations above the TCLP limit. If it does, the waste will have an additional waste code.
- Determine if your paint waste will need to have an F code. If you add your used gun washing solvent to your waste paint drum, and the spent solvent mixture contains before use, a total of 10% or more (by volume) one or more of non-halogenated solvents or those solvents listed in F001, F002, or F004, and the still bottoms from the recovery of these spent solvents, then you will need to add these “F” listed wastes and D001 ignitable, and they could possibly be toxic, if they contain metals.
- Determine if your waste may be a characteristic toxic waste. If you add your used gun washing solvent to your waste paint drum, and the gun solvent contains MEK or chlorinated solvents, it is possible that the mixture may be a TCLP hazardous waste as well, requiring the appropriate waste code be added.

**You should:**

- Order only the products you need.



- Rotate stock to avoid having to dispose of product that has deteriorated.
- Avoid making larger batches than needed for the job.
- Offer leftover mixes to customers for touch-ups, when possible.
- Avoid using the option to solidify paint waste with kitty litter (ONLY possible if paints do not contain toxic metals and any solvent you add does not contain one of the F listed solvents or chlorinated solvents.)

**You should consider:**

- Using a computerized mixing system to reduce paint leftovers.
- Utilizing low-VOC products, even if your shop is not required to do so.

**4.15 Personal protective equipment:** Selecting the proper personal protective equipment for each potential hazard is critical. Improper selection and/or use of PPE may result in employee injury.



IOSHA requires that employers, under 1910.132, perform a hazard assessment of the shop, determine which hazards are present, and have a written certification of the evaluation. The written certification can be performed by any knowledgeable person, such as the shop owner or manager, or by a safety consultant. Additional information on this certification is provided in the “You Must” section below.

In addition, employees must receive training on the proper selection, use, and care of PPE. A written training certification must be kept on file. See the “You Must” section below for detailed information on the PPE training requirements.

Used protective equipment that is heavily contaminated with paints containing toxic metals could potentially be a characteristic hazardous waste. Changing respirators, gloves, etc. before they become heavily contaminated significantly reduces the chance that the equipment would be a hazardous waste, and also offers the greatest protection for your employees. Refer to the guidance on contaminated masking paper, which has similar requirements for handling and disposal.

If personal protective equipment is contaminated with blood or other potentially infectious materials as defined in IOSHA’s Bloodborne Pathogen program under standard 1910.1030. Become familiar with and make a determination whether your company falls into these categories, and follow the “red bag” section and manage the waste accordingly.

**You must:**

- Determine the hazards your employees will be exposed to, and select appropriate personal protective equipment.
- Provide adequate supplies of the appropriate personal protective equipment and make them readily available to your employees, free of charge.
- Have on file a written Exposure Control Plan, signed by a knowledgeable person, detailing:
  - ✓ The workplace evaluated (i.e., name and address of your shop)
  - ✓ The person offering the certification

- ✓ The date the assessment was performed
- ✓ Have on file a written training certification, signed by a knowledgeable person, which verifies that employees have been trained, and they understood the training. The training must cover: when PPE is needed, the specific PPE required to protect the employee from each of the identified hazards, how to put on and adjust the PPE, how to care and store the PPE, and the limitations of the particular piece of equipment. The certification statement must contain:
  - a. Name of each employee trained
  - b. Date of the training
  - c. Subjects covered in the training
  - d. Name of trainer/certifying person
- Determine if your used personal protective equipment is a hazardous waste and manage it accordingly. It most likely will not be, unless heavily contaminated with paint or solvent.
- Include the 1910.1030 Bloodborne Pathogens program if personal protective equipment is contaminated with blood or other infectious materials that employees have the potential to be contaminated by. See the “Red Bags” section and manage the waste accordingly.

**You should:**

- Change out personal protective equipment well before it becomes heavily contaminated so that you provide greater protection for your employees and reduce the possibility of it being a characteristic hazardous waste.

**4.16 Red bags/bloodborne pathogen program (trash bags containing wastes potentially exposed to bloodborne pathogens):** Gloves, aprons, gauze, etc. that are used in administering first aid or for cleaning blood contaminated areas of a vehicle, must be contained to prevent employees, trash haulers and others from accidental contact. Some shops use red plastic bags (Red Bags) that are pre-labeled with the BioHazard markings, and are used in conjunction with flip-top garbage containers, designed exclusively for blood contaminated wastes. These bags not only provide a safe and easy way to handle the materials, but also alert employees of the danger of the bags’ contents.

These bags can, however, present a bit of a problem when it comes to disposal. Technically, these bags are intended to contain non-puncturing (gauze, gloves, etc) wastes that are classified as infectious wastes. By definition, infectious waste is a liquid, semi-liquid, or a solid so saturated with blood or dried blood that blood could be squeezed out of it or flaked off.) If the waste falls into these categories, it is an infectious waste, and CANNOT be disposed of in the regular trash. You must then arrange for the infectious waste to be taken to an infectious waste disposal or treatment unit. Talk with your regular trash hauler, as many offer a separate service for infectious waste.

The catch for most collision repair or auto refinishing shops is that their first aid or clean-up wastes are usually pretty dry and have very little blood on them. (In addition, the clean up waste, if an effective disinfectant cleaner is used - as is required - would have already treated the materials and rendered them pathogen-free). So they don't qualify as true infectious wastes, and therefore CAN be disposed of in the regular trash. But if your hauler notices a Red Bag in the trash, they may refuse to take it. If the hauler doesn't notice it at your shop, but it is uncovered at the transfer station or landfill, they may be considered as violating the infectious waste rules and could be fined.

What are your alternatives? You obviously want to protect your employees, customers, and your trash hauler from contact with your blood contaminated wastes, even if they are not true infectious wastes requiring special labeling and handling. Keep these wastes segregated, and sealed. If they do not meet the criteria for infectious waste, they can be put in a plain plastic bag, tied securely, and put in your trash.

There are some things you can do to help ensure that your wastes will not fall into the infectious waste category. Don't skimp on gauze or other bandages when administering first aid (make sure the bandage or gauze does not get saturated - have enough to soak up all the blood with ample excess bandaging, to ensure the blood stays trapped within the gauze); with your vehicle clean-up wastes, use sufficient disinfectant to not only clean the vehicle, but also to disinfect any residue picked up in the cleaning wipes. Using these techniques will help you keep out of the infectious waste category. Remember that when wastes do not meet the criteria for infectious wastes, they can be sealed in a regular plastic bag and put in your dumpster.

If you do at some point have blood contaminated waste that could be classified as infectious waste, you could potentially disinfect it yourself and therefore keep it from being considered infectious waste. You must use an established, recognized method for disinfection. The most feasible for the typical collision repair and auto refinishing shop would be chemical disinfection. The chemical you use to disinfect the interior of the blood-stained vehicles should be able to disinfect any of your contaminated waste materials, but you will need to make sure that the chemical reaches all parts of the contaminated materials, even in the center of a wad of gauze. If you do not want to use your vehicle disinfectant, you could use regular household bleach, in at least a 10% solution. (Even though cutting household bleach to a 10% solution is recognized as effective in disinfecting against blood borne pathogens, increasing the concentration to 20-25% will counter any mis-measurements or miscalculations made during the dilution process. These diluted solutions lose their effectiveness quickly and should be made up fresh just prior to their use.) CAUTION: despite the fact that bleach is readily available in almost any store and just about every household has bleach on hand, do not lose sight of the fact that bleach (sodium hypochlorite) is a hazardous chemical and can cause some nasty injuries. You would need to have a MSDS on hand, and include it in your hazard communication training and program. In addition to the hazard communication issues, you would need to provide chemical resistant gloves, goggles, etc. and would have to be sure that your infectious waste does not contain anything that may cause a chemical reaction with the bleach. (For example, if you have some of your disinfectant for cleaning

car interiors in with the waste materials, and it contains ammonia, toxic chlorine gas could be released. Don't add the bleach solution to your contaminated waste until you know there is no ammonia present.) Regardless of your chosen disinfectant, the container in which you perform the disinfection would have to be impervious to the chemical (such as a plastic, leak-proof container) and you would have to be sure any liquid disinfectant is thoroughly absorbed before you could put it into the regular trash. Remember that you cannot put free liquids in your regular trash.

**You must:**

- Determine if your first aid waste and your vehicle disinfection waste fit the definition of infectious waste (i.e., liquid, semi-liquid, or a solid so saturated with blood or dried blood that blood could be squeezed out of it or flaked off.)
- Handle the waste in such a manner that employees, customers, etc. do not come in contact with the contaminated waste (i.e., seal it in a plastic bag.)

**You must (for waste that does fit the definition of an infectious waste):**

- Segregate it and label it as BioHazard.
- Dispose of it at an infectious waste disposal or treatment facility (your hauler may offer a separate service, or you may need to contract with a specialized vendor), or
- Disinfect your infectious waste, using established, recognized methods and insuring that the infectious waste is thoroughly sterilized (see detailed discussion in the Hazards and Rules.)
- Include your disinfectant (used for your own on-site treatment) in your Hazard Communication program and training.
- Provide an "Exposure Control Plan, Personal Protective Equipment, training to all potentially exposed personnel, plus offer the HBV shots or have employees sign a decline letter for their medical file.
- Tie shut the bags for disposal.

**You should:**

- Use ample bandages or gauze for first aid to avoid saturating it to the point that it would classify as infectious waste.
- Train personnel in First aid and Life Saving techniques, in not within 3-minutes of a hospital.
- Use sufficient disinfectant when cleaning contaminated areas of a wrecked vehicle to insure that not only the vehicle parts are sterilized, but also the wipes or other materials used in the disinfection process (but not so much that the cloth is dripping or could squeeze out excess disinfectant.)
- Immediately seal up plastic bags with materials used for first aid or disinfecting contaminated vehicles, and properly dispose of them.

**You should consider:**

- Handling all blood contaminated waste as infectious waste and sending it to an infectious waste disposal or treatment facility.

**4.17 Reducers/thinners:** Reducers/thinners are usually a petroleum-based solvent which may contain hazardous solvents such as xylene, toluene or methyl ethyl ketone (MEK). In Clark, Floyd, Lake or Porter counties there is no limit on the VOC content of the reducer itself, but shops must ensure that the reducer will still produce a compliant as-applied VOC when combined with the other ingredients of the mix.

For reducers, the primary hazard is flammability since flash points are frequently well below 140 degrees F. Storage and handling requirements are very strict, from both IOSHA, and the Fire Marshal.

Additionally, the presence of hazardous ingredients such as xylene, toluene, or MEK may pose a respiratory hazard during use. Check your MSDS to determine if such chemicals are present, their percentage in the mixture, and determine if employee exposure is high enough to require respiratory protection. (See 1910.134 on Respiratory Protection).

Since the reducer goes into the paint mixture, any excess reducer will be disposed as part of your paint waste. Should you have unused reducer you no longer need, you could try to find another shop that needs it, or you can dispose of it as a hazardous waste in your paint waste drum.

**You must:**

- Store containers according to flammable liquid standards (see section 3.3).
- Keep open flames or sparks away from the area until thoroughly dry.
- Provide employees with gloves and other protective clothing.
- Determine the exposure level to the hazardous chemicals (such as xylene, benzene or toluene) and provide proper respiratory protection and training, as needed (see on Respiratory Protection).
- Keep containers closed at all times. You cannot leave containers open to evaporate excess material as a way to reduce the amount of waste product you have to dispose of. Doing so is a violation of IDEM, IOSHA, and Fire Marshal rules.
- Treat waste material as an ignitable hazardous waste. You must:
- Mark the drum with the words HAZARDOUS WASTE and the date the drum was filled (Assuming satellite accumulation. Otherwise, you must mark the date waste was first put into the drum). See Section 3.4 for more information.
- Mark the drum with the D001 for ignitable and the “F” waste code, if applicable.
- Mark the drum with the Flammable Liquid label.
- If the thinner has MEK or chlorinated solvents, the appropriate TCLP waste code may need to be applied.
- Keep containers closed.
- Conduct weekly inspections to check for leaks or drum deterioration. Manifest the waste, use a hauler with an EPA I.D. number, and send to an approved Treatment, Storage and Disposal facility. (See section 3.5 and 3.6)

**4.18 Soaps and windshield washer solution:** Some soaps may be caustic and can burn the skin in their undiluted form. Check the MSDS on each product you use to determine

the type of PPE it requires. Wet soapy floors are another hazard and require employees to use extra caution to prevent slips and falls. Abrasive-surfaced floors and/or non-skid soles on shoes will help reduce the chance of injury.

Windshield washer solutions are commonly alcohol-based and have a low flash point, making them a hazardous material (flammable liquid.) Check your MSDS to determine the materials flash point. Solution with a flash point below 140 degrees F must be handled and stored according to the flammable liquid requirements (see section 3.3).

Soaps and other materials may present a problem when discharged in your wastewater. See the Wastewater Section in Chapter 2 for and the following “You Must” section for more information on wastewater from your service bay drains. An alternative to using soap is to use only water (even high pressure) to clean vehicles. This activity does not require shops to obtain a permit.

**You must:**

- Check the MSDS on the products you use to determine if they are caustic or otherwise require protective clothing or special handling.
- Dispose of unusable windshield washer solvent (in its pure form) as an ignitable hazardous waste.
- Follow the wastewater requirements listed in the Wastewater Section of Chapter 2
- Not discharge soapy water on the ground or into waterways.
- Contact with your local POTW’s pre-treatment coordinator for approval before discharging soapy waters to the sanitary sewer. See the Wastewater section in Chapter 2 for more information.
- Follow the regulations given in the Wastewater Section of Chapter 2 if your shop is not connected to a POTW, and you must also:
  - ✓ Not discharge your soapy wastewater to a septic system. (The local health department will not approve a septic system for an industrial wastewater stream).
  - ✓ Obtain a construction permit if you have a holding tank, and have an approved hauler take your dirty water to a treatment plant equipped to handle it. When floor drains go into the holding tank, it will settle out the solids. An adjustment may need to be made to the pH (if needed) before being discharged to the sewer.

Another option is to have your holding tank periodically pumped out by an approved hauler, rather than discharging it. The hauler can take your dirty water to a treatment plant that is equipped to handle it. This will eliminate the need for a discharge (NPDES) permit, but you will still need a construction permit for the holding tank.

- Not discharge wastewater unless the pH is between 6.0 and 9.0.
- Use only water to clean the exterior (no engine cleaning allowed) of vehicles if you are not on a sewer system and do not want to get a discharge permit. You will still

need a construction permit for your holding tank.

**You should:**

- Use soaps that are biodegradable, low sudsing, and are a moderate pH (6.0 - 9.0) in their pure form, so they will be within acceptable pH when mixed with water and discharged.
- Connect to a POTW's sewer system, if available.

**4.18.1 Wastewater from service bay drains:**

**Additives and contaminants:** When water is contaminated with materials such as oil, antifreeze or other automotive fluids, it may contain high levels of total petroleum hydrocarbons and other contaminants. This wastewater may need to be treated in order to meet the pollutant limits of your local publicly owned treatment works (POTW). In some instances, the wastewater may even need to be managed as a hazardous waste.

**Regulatory overview:** The Clean Water Act regulates the discharge of industrial wastewater and does not allow discharges of industrial wastewater to septic systems. Discharges to the waters of Indiana (including storm drains, rivers, streams, lakes, ditches, etc.) are only allowed if the business has a National Pollutant Discharge Elimination System (NPDES) permit from IDEM's Office of Water Quality (OWQ.) As mentioned in Chapter 1, this manual does not cover NPDES permitting requirements, as these permits are complex and are not recommended for small businesses. Contact CTAP or OWM if you are interested in obtaining more information on NPDES permitting.

If your shop discharges its wastewater to the sanitary sewer, you must meet the standards (effluent limits) set by the receiving POTW. In order to meet these standards, some shops may need to treat their wastewater prior to discharging it to the sewer. You should contact your local POTW to determine the type and amount of pollutants that you may discharge to the sewer.

Depending upon the type and level of contaminants in your shop's wastewater, the wastewater may be considered to be a hazardous waste. When hazardous waste enters the sanitary sewer, it is no longer regulated as hazardous waste, but rather, is regulated by OWQ and the POTW that receives the wastewater.

Shops with holding tanks are required to have a construction permit and to make a hazardous waste determination on their wastewater (note that, because wastewater from holding tanks does not enter the sanitary sewer, the wastewater remains regulated under the hazardous waste rules.) Wastewater that meets the POTW's standards may be hauled directly to the POTW. If the wastewater does not meet the POTW's standards, but does meet the standards of another permitted wastewater treatment facility, the wastewater may be hauled to that facility.

**Management responsibilities:**

How you manage your shop's wastewater will depend upon the location where your bay drains discharge. If you do not know where your drains discharge, begin by doing the following:

- Check your sewer bill to determine if you are charged for services by your local POTW. If you are charged for this service, your shop is most likely connected to the POTW.
- Walk the property line to look for outfall pipes.
- Talk with neighbors to determine if outfall pipes originate from their property.
- Check with your county sanitation department to determine if they will add a colored dye to your wastewater to locate your discharge (sewer and excavating companies also perform this service.)
- Call the Indiana Underground Plant Protection Service (Call Before You Dig) at 800/382-5544. This service is available 24 hours a day, 365 days a year.

Note that older shops may have unauthorized connections to storm sewers because sanitary sewers may not have been available when the shop was built. In many areas, storm drains became available prior to sanitary sewers, and, as a result, industries connected to storm sewers.

Listed below are the management responsibilities that you must follow depending upon where your shop's bay drain discharges. Also listed are suggested practices that you should follow in order to ease your regulatory requirements or to avoid wastewater requirements altogether.

**You must (for discharging to a septic system or directly to the environment):**

- Obtain an NPDES permit from OWQ if your drain leads to a storm drain, river, stream, and lake or to the ground. The requirements for NPDES permitting are complex and are not well suited for the majority of small businesses. More suitable options include temporarily plugging your drains to become a "dry" shop, connecting to the local POTW, or installing a holding tank. Call CTAP for assistance.
- Connect to the sanitary sewer or install a holding tank if your drain leads to a septic system.
- Install an oil/water separator and it must meet the design requirements of the Indiana Department of Fire and Building Services. Contact the Plan Review Division for specific design requirements. Prior to installing your oil/water separator, you must submit plans, specifications, and a construction permit application to OWQ. An application can be obtained by contacting OWQ at (317) 232-8645.

**You should:**

- Install wastewater containment sumps or holding tanks and have your wastewater hauled to a permitted wastewater treatment facility or connect your drains to a municipal sanitary sewage system.
- Follow the "you should" recommendations that reflect your new discharge status (either to the sanitary sewer or holding tank.)
- Follow the "you should" recommendations for all shops.



**You must (for discharging to a sanitary sewer or POTW):**

- Contact your local POTW to obtain information on the effluent limits (limits on pollution in your wastewater) and to notify them that you are discharging to their system if your bay drains discharge into the sanitary sewer system leading to a POTW. You must also meet all effluent limits set by the POTW. You may obtain a copy of the local sewer use ordinance (i.e., discharge rules) from your local municipal or district POTW. A listing of prohibited discharges and of Indiana's 45 approved POTW wastewater treatment programs can be obtained from IDEM's web site ([www.IN.gov/idem/water/](http://www.IN.gov/idem/water/)).
- Submit a one-time notification to your local POTW and IDEM's Office of Land Quality if you discharge a substance into the sanitary sewer, which, if otherwise disposed, would be hazardous waste. Contact CTAP, OWQ, or your local POTW for more information. Note that your hazardous waste may not meet the effluent limits of your local POTW.
- Install a oil/water separator and it must meet the design requirements of the Indiana Department of Fire and Building Services. Contact the Plan Review Division for specific design requirements. Prior to installing your oil/water separator, you must submit plans, specifications, and a construction permit application to OWQ. An application can be obtained by contacting OWQ at (317) 232-8645.
- Schedule regular preventive maintenance to keep your oil/water separator operating at peak efficiency.
- Ensure that your floors drain to approved oil-water separators or traps discharging to the sewer in accordance with the Plumbing Code.
- Have the contents of oil separators or traps collected at sufficiently frequent intervals and removed from the premises to prevent oil from being carried into the sewers. Self-closing metal cans must be used for all oily waste.
- Meet the POTW's effluent limits. If not, you must:
  - ✓ Change your work practices (i.e., preventing materials from entering your bay drains) so that your effluent meets the POTW's limits; or
  - ✓ Install pretreatment equipment and schedule regular preventive maintenance to keep the equipment operating at peak efficiency so that your effluent meets the POTW's limits.

**You should:**

- Follow the "you should" recommendations for all shops that are listed below

**You must (for discharging to a holding tank):**

- Obtain a construction permit from OWQ for the installation of the tank and have permission to haul your wastewater to the POTW. Your hauler will usually take responsibility for working with the POTW to ensure that they will accept your wastewater.
- Have an oil/water separator that meets the design requirements of the Indiana Department of Fire and Building Services. Contact the Plan Review Division for specific design requirements. Prior to installing your oil/water separator, you must submit plans, specifications, and a construction permit application to OWQ. An application can be obtained by contacting OWQ at (317) 232-8645.

- Haul your non-hazardous wastewater that does not meet the POTW's effluent limits to a permitted treatment facility.
- Determine if your wastewater is hazardous. If so, you must:
  - ✓ Ensure that your holding tank meets a number of special standards required for generators that accumulate hazardous waste in tanks. These standards include, but are not limited to: special treatment and storage requirements depending on the flash point of the material stored in the tank; secondary containment; and daily and/or weekly monitoring of the tank and its contents. Contact CTAP or IDEM's Office of Land Quality for assistance.
  - ✓ Properly manage your wastewater (refer to Chapter 2 for information on the proper handling of hazardous wastes.)
  - ✓ Count your wastewater toward your hazardous waste generator status (see Section 2.8.) Note that, when hazardous waste enters the sanitary sewer, it is no longer regulated as hazardous waste, but rather, is regulated by OWQ and the POTW that receives the wastewater. Because wastewater from your holding tank does not enter the sanitary sewer, the wastewater continues to be regulated as a hazardous waste.

**You should:**

- Avoid generating wastewater, especially hazardous wastewater, by following the "You Should" and "You Should Consider" recommendations for all shops that are listed below. If your wastewater is nonhazardous, you should ask your hauler for written confirmation that the POTW accepted your shops wastewater. Note that POTWs do not accept hauled wastewater that is a hazardous waste.

**You should (for all shops):**

- Post signs at sinks and paint stencils at drains to remind employees not to pour wastes into floor drains, sinks, outdoor storm drains or other sewer connections.
- Review material safety data sheets for all products used at your shop and replace products that contain chlorinated and/or toxic solvents with more environmentally friendly, aqueous-based products.
- Store used automotive fluids in leak-tight containers for recycling or disposal.
- Use spill trays when draining automotive fluids or when adding fluids to a vehicle.
- Use dry procedures such as sweeping shop floors rather than hosing them down with water.
- Install secondary containment barriers around storage areas containing liquid materials.
- Ensure that spill prevention and containment equipment, and cleanup supplies readily accessible to employees.

**You should consider (for all shops):**

- Building a solids tray at the drain's entrance to reduce sludge buildup in you sump or oil/water separator.
- Installing a temporary plug in your bay drains and becoming a "dry shop."

You may become a “dry shop” by eliminating water from your cleanup process and by preventing leaks and spills. By becoming a “dry shop,” you eliminate the need to monitor your wastewater and, potentially, to install expensive wastewater pretreatment equipment.

**You should (to become a dry shop):**

- Identify and control all wastewater discharged from your facility by ensuring that employees do not pour liquid wastes into floor drains, sinks, outdoor storm inlets, or other sewer connections. Post signs at sinks and paint stencils at drains to remind employees. Seal your drains, using a temporary drain cover or an inflatable plug.
- Prevent leaks from vehicles and equipment by placing designated drip pans under leaking vehicles while they are awaiting repairs. Make the repairs as soon as possible.
- Keep a portable inflatable berm and absorbent material on hand.
- Drain all fluids, including air conditioner coolant, from wrecked vehicles upon arrival.
- Maintain your shop floor equipment. Check your equipment for leaks frequently.
- Draining and replacing motor oil, coolant, and other fluids in a designated area where there are no connections to the storm drain or the municipal sewer. Clean up spills before they reach a drain.
- Emptying and wiping the designated drip pans when you are finished working on the vehicle, or when they are about half full, to avoid spills, keeping a designated drip pan under the car while you unclip hoses, unscrew filters or remove other parts. Use larger, flat, low-brimmed pans under cars where mechanics are working and where ordinary drip pans are too cumbersome.
- Immediately transfer used fluids to their proper container. Don't leave drip pans or other open containers unattended.
- Promptly clean up drips and spills: .
- Scoop up the spilled material using a dustpan and squeegee (for small spills), when possible (such as with spilled oil). If not thick enough to scoop, clean spills with a rag or absorbent. Do not wash spilled materials down the drain.
- Use a damp mop for routine cleanup and wet mop the floor only in the areas that need it.
- Use absorbent “snakes” as temporary booms to contain a liquid (for medium spills) while you clean it up.
- Use dry absorbent material such as “kitty litter” or “floor dry” to soak up the liquids.
- Perform a hazardous waste determination on absorbent materials prior to disposal.
- Use a wet/dry shop vacuum cleaner to collect spills for storage in segregated waste containers. If you keep several vacuums on hand, you can designate one for each waste (motor oil, antifreeze, etc.) and recycle the liquid. **Do not use vacuums for gasoline, solvents, or other volatile fluids because of the explosive hazards.**
- Refer to Section 3.7 for large spills.

**4.19 Spray booth filters:** Spray booth filters must be of an approved filter material for use with spray paints. Because of the potential for spray booth filters to catch fire or spontaneously ignite, The Department of Fire and Building Services regulations require that dirty spray booth filters be immediately taken outside and stored away from the building (i.e., in a dumpster that is at least 20 feet from the building), or be submerged in a container of water if stored inside.

The fire codes regulations do not distinguish between the type of paint being used and the type of industries regulated. Some wood finishes and original equipment vehicle finishes have been known to cause the dirty spray booth filters to spontaneously ignite. While this is extremely unlikely for auto-refinishing paints, you must still follow the regulations.

If your spray booth filter is heavily contaminated with paint that contains significant levels of toxic metal such as lead, cadmium, or chromium, it may be a characteristic hazardous waste. This is extremely unlikely in our typical collision repair and automotive refinishing shop. Not only are the paints almost void of toxic metals, but with a regular change-out schedule of your filters to ensure good airflow, there won't be a heavy build up of paint on the filter.

Check your MSDS sheets, and if you find that many of your paints contain toxic metals, and you keep your filters on-line until they are really dirty, you will need to run a TCLP test on the paint filter to be sure it does not exceed regulatory limits. Alternatively, you can run total metals, which is much less expensive, and then use those results to extrapolate what the TCLP level would be. Your testing laboratory should be able to assist you in making this extrapolation.

Sampling of the filter will be an important part of proper waste determination if your MSDS sheets reveal that you need to run tests. Regulations require a representative sample of the waste, and the lab will require a minimum amount of filter sample to run the test. Given the size and range of paint contamination throughout the filter, you will have to estimate the best way to get a representative sample. You could take the sample from the dirtiest part of the filter for a worst-case scenario. If the worst part of the filter passes TCLP, then you know the filter as a whole will be even less contaminated, and, therefore, will not be a hazardous waste. But if this dirtiest part of the filter fails the TCLP, you will need to do a lot more sampling to prove and document that this concentrated sample was not representative.

What you can do is take 8 samples of equal size (talk with your lab to determine how much total weight of sample they need) from various areas of the filter. For example, let's say you estimate that 75% of the filter area has paint on it, and the other 25% are clean because the metal frame blocked it. In this case, you would take 6 samples (75% of 8 total samples) from the dirty area and 2 from the clean filter area. You would combine all 8 as one sample for the lab to test. This would approximate a representative sample for the entire filter, which is what you want. It may not be exact precision, but will be

suitable for this purpose of determining if the filter passes or fails TCLP. (The 8 samples is just an estimate; the more samples, the more representative. If you use only 1 or 2 samples from this large an area, the composite may not be representative of your waste stream.)

If your shop has had an experience of having a paint filter catch fire spontaneously (in the dumpster, for example), you may have to classify your paint filters as an ignitable hazardous waste. Ignitable hazardous wastes typically are liquids, but the definition does include the possibility of an ignitable solid, based on the solids ability to burn vigorously without needing a spark to start it. There is no true lab test for ignitability of solids, so your history with filter fires is the primary indicator. There is a lab test to determine the rate at which a solid will burn which can be used in conjunction with a history of spontaneous filter fires to confirm their status as a solid ignitable hazardous waste, but this test should not be used alone as indication of a solid ignitable hazardous waste.

If your shop generates more than 220 pounds per month of contaminated paint booth filter material, contact your local solid waste hauler for information on disposal. It would take an extraordinary number of filter changes in a month to make 220 pounds. You can gauge whether you might generate more than 220 pounds by tracking how many filter changes you perform in a month, and multiplying by the weight of a dirty filter. (Your total weight includes filters changed from all your spray booths. If, for example, you change out your filters twice a month in each of your three spray booths, you actually generate 6 filters each month. You would calculate the weight of 6 filters to estimate if you are generating more than 220 pounds in a month).

For shops in Clark, Floyd, Lake or Porter counties, where the VOC reduction rule is in place, waste filters must be stored in a closed container.

**You must:**

- Know the amount of toxic metals (lead, chromium, cadmium, etc.) in the paints you use so you can use that knowledge in helping determine if paint-contaminated booth filters may be a characteristic hazardous waste.
- Determine if your waste filters are a characteristic hazardous waste due to metals content based on your generator knowledge, or sampling and lab testing (i.e., if the filter fails TCLP test). See discussion above on representative sampling.
- Determine if your shop has a history of spontaneous filter fires that could make the waste filters an ignitable solid hazardous waste.
- Immediately take dirty booth filters to the outside waste storage area or store them inside in a container with filled with water.
- Store your waste filters in a closed container, if your shop is in Clark, Floyd, Lake or Porter Counties.

**You should:**

- Change your booth filters frequently, to maintain good airflow and avoid generating a characteristic hazardous waste for toxic metals.
- Have your employees wear a dust mask, gloves, and coveralls when changing the dry

filters to protect the employee from dust particles that may break loose during handling.

**You should consider:**

- Sampling and running TCLP or total metals lab tests on your dirty paint booth filters to verify they are not a hazardous waste, even if your MSDS sheets showed very few paints with toxic metals.

**4.20 Welding rods:** The primary hazards with welding relate to respiratory hazards from the welding fumes, eye injuries when exposed to the flash or arc, and potential for burns or fire from uncontrolled hot sparks. Welding rods themselves, whether new or remnants after use, sometimes can be recycled with your scrap metal. You will need to check with your local scrap dealer as some consider them a contaminant and do not want them. Depending upon the type of welding you do, the metal content of the rods can vary, but usually are not considered to be a hazardous waste.

**You must:**

- Determine whether your employees are exposed to toxic levels of welding fumes, and implement a respiratory protection program if they are (see section 5 on respiratory protection) based on the material safety data sheets recommendations. Having good ventilation in the area is important in minimizing employee exposure. Most studies indicate that welders are not exposed to fumes that exceed the Permissible Exposure Limits if they are in a well ventilated area and are wearing a properly fitted welding hood/shield, which provides a barrier to keep the fumes away from the welder's nose and mouth. Proper placement of the sampling device is inside the welding hood, not on the welder's lapel, as happens for most sampling.
- Protect your welders, nearby employees, and visitors from the flash of welding arcs. Hoods with the proper filtering lenses protect the welder and screens or panels protect passerby. See the Welding Section in Chapter 2.5.13 for more information.
- Protect workers from burns resulting from contact with hot sparks. Aprons or other fire retardant clothing is most suitable for our typical collision repair/automotive refinishing shop.
- Prevent a fire. Combustible materials such as paper or cardboard are not allowed within 35 feet of the welding operation.
- Do not weld in an area where paint, solvent, or other flammable vapors are present.
- Ensure that employees working as welders have been trained in the proper operation of the equipment, fire prevention requirements associated with welding, and the respiratory hazards associated with welding operations and how to reduce their exposure.

**You should:**

- Have appropriate fire extinguishers immediately available, (i.e., within a few feet of the welding operation and easily accessible.) This is a requirement in an area where combustible materials cannot be moved out of the area. Since our typical collision repair/automotive refinishing shop has a designated area where welding is done, there should be no combustibles nearby.

**4.21 Tires:** When tires are improperly stockpiled or illegally dumped, they trap rainwater and become breeding grounds for disease-carrying mosquitoes and rodents. Another problem with tire storage piles is that they can be a major fire hazard and are extremely difficult to extinguish. When tires burn, they release toxic gases into the air and leave behind a hazardous oily residue that pollutes the streams and ground water. The accumulation of waste tires is restricted to less than 1000 outside or 2000 within a completely enclosed structure.



On November 9, 2000 waste tire management regulations were revised under 329 IAC 15, through OLQ. Indiana code (13-20) was changed to read, shops that accumulate 12 or more tires per year must keep a record indicating the number of tires generated, and how these tires are disposed. You can retain copies of the waste tire manifests received from your tire transporter, or if you deliver the waste tires for recycle/reclaim, you may ship them on a bill of lading and keep the count this way. The point being to keep an account of where your waste tires went and how many there were. You need to maintain these records for one (1) year.

Remember that, as the generator of waste tires, you are ultimately liable if you use a unregistered transporter that fails to properly manage your tires. Also be aware that large accumulations of waste tires are prohibited.

**Definitions of key terms:**

**Retailer:** Sec.194.(a) “Retailer”, for purposes of IC 13-20-14, means a person engaged in the business of selling new tires at retail in Indiana.

**Used tire:** 329 IAC 15-2-13, means, a tire that (1) Is suitable for use on a motor vehicle as (a) the tire has two thirty-seconds (2/32) inch of remaining tread, or the tire wear bars are not exposed, (b) the tire has no cuts, slashes, or exposed cord. (2) The tire is stored in a rack, stack or row. (3) The tire is stored out of the weather to prevent accumulation of water or precipitation in the tires. Used tires stored outside can be regulated as “waste tires..”

**Waste tire:** IC 13-11-2-25, for purposes of IC 13-20-13 and IC 13-20-14, means a tire that is not suitable for the tire’s original purpose.

According to IC 13-20-14-3 a retailer who sells new tires to a person shall accept waste tires that the person presents to the retailer at the place where possession of the new tires is transferred to the person. The number of waste tires that a retailer is required to accept from a person under this section is equal to the number of new tires that the retailer sells to the person.

So, as a retailer you are required to accept from your customers one tire for each new or retreaded tire that is sold. For each new tire sold, you must collect a twenty-five (0.25) cent fee. You are entitled to keep one (1) percent of the fee: the remainder is to be paid to the State Department of Revenue when the State gross retail tax is due.

According to IC 13-20-14-4, a source of waste tires shall dispose of waste tires in the source's possession by one or more of the following means:

- Delivery to a wholesaler or to an agent of a wholesaler (a retailer)
- Delivery to a manufacturer of tires
- Delivery to a facility that: (a) recycles tires; or (b) collects tires for delivery to a recycling facility.
- Delivery to a permitted final disposal facility regulated under environmental management laws.
- Delivery to a waste tire storage site.
- Delivery to a facility operated as a waste tire cutting facility under a permit issued by the commissioner.
- Delivered to a registered waste tire transporter or a person who operates a municipal waste collection and transportation vehicle licensed under IC 13-20-4.

IC 13-20-14-5.3, states in sec.5.3 A person that is the source of more than twelve (12) waste tires per year, including tire retailers, auto salvagers, and sellers of used tires, shall (1) retain a copy of manifests received from a waste tire transporter under section 5 of this chapter for at least one (1) year; and (2) make a copy of the manifests available to the department upon request.

This section does not cover IOSHA's regulations on servicing multi-piece and single piece rim wheels used on large vehicles such as trucks, tractors, trailers, buses and off-road machines. For more information on these requirements, contact BuSET or CTAP.

**Management responsibilities:** Listed below are the requirements pertaining to the sale and disposal of tires, including the two used tire management options previously mentioned. Also listed are suggested practices that you should follow in order to ease your regulatory requirements and improve the environmental health of your shop.

**You must (for those that sell new tires):**

- Post a sign in a location that is conspicuous to your customers. The sign must be at least 8.5" wide by 11" high and the lettering must be at least 18-point type. (The sign included in the binder pocket of this manual can be used to meet this Indiana Code requirement.) The written notice must indicate the following language:

*"Do not put waste tires in the trash. Recycle your waste tires. State law requires us to accept your waste tires for recycling or proper disposal if you purchase new tires from us."*

- Accept from the customer at least one used tire for each new (or retreaded) tire sold.
- Collect a twenty-five-cent (0.25) fee for each new tire that is sold, and pay all but one percent (1%) of the collected fees to the State Department of revenue when the State gross retail tax is due.



**You must (for those that store used tires in a storage area that is no larger than 500 square feet):**

- Stack tires in a orderly manner in an approved location so as not to create a fire hazard.
- Stack tires no higher than two feet from the ceiling and do not block any exit from the building.
- Not stack tires higher than 20 feet if stored outside. The location of the tire pile must not constitute a hazard to adjacent buildings or property.
- Contact the Plan Review Division for regulatory information that may be specific to your shop.
- For storage areas greater than 500 square feet, contact the Plan Review Division for assistance.

**You must (if you dispose of your used tires as a solid waste):**

- Alter the used tire by cutting it into 4 relatively equal pieces or by removing both of the sidewalls from the tread, resulting in 3 pieces. Note that this is an IDEM regulation. The landfill may require additional processing or may refuse to accept any tire material.
- Use a tire hauler that is registered with IDEM and must manifest the tires using an Indiana Waste Tire Manifest form if you transport more than 20 used tires, either whole or altered. A list of registered waste tire transporters and the Waste Tire Manifest form are both available via IDEM's web site.
- Follow IOSHA regulations if you service multi-piece or single piece rim wheels used on large vehicles. Contact BuSET or CTAP for more information.

**You should:**

- Educate your customer about tire manufacturers recommended guidelines such as regularly checking tire pressure and rotating tires to extend the life of their tires.
- Send your waste tires to registered waste tire processors that produces beneficial reuse materials.

**4.22 Batteries (lead and acid):** As the name implies, lead-acid batteries contain both lead and acid (sulfuric acid). Each of these materials has its own hazard and impact. Lead can enter the body by ingestion (this usually occurs when putting hands or other objects contaminated with lead dust into the mouth) or by breathing lead dust. The effects of lead on the adult body include the following: problems with reproduction, digestion, and with memory and concentration; high blood pressure; nerve disorders; and muscle and joint pain. Lead is even more dangerous to children because their bodies are more sensitive to lead's effects and because their bodies absorb more lead than do adults' bodies.

The electrolyte (battery acid) in a typical lead-acid battery contains approximately 60% water and 40% sulfuric acid. Sulfuric acid is a corrosive material that can cause harm to the body upon physical contact or through the inhalation of vapors or mists. When sulfuric acid comes in contact with flesh, it burns the skin, leaving a black charred carbon

residue in place of living tissue. Contact with large areas of flesh can result in shock and, possibly, death. Repeated or prolonged exposure to vapors or mists can cause inflammation of the upper respiratory tract, potentially leading to serious lung and bronchial damage.

Sulfuric acid is also a hazard due to reactivity. Sulfuric acid can react with other chemicals, generating enough heat to ignite ordinary combustible materials. Many types of metals are easily dissolved by sulfuric acid, resulting in a release of hydrogen that is extremely flammable. In addition to reactivity, sulfuric acid can also feed an existing fire by releasing oxygen, which acts as a fuel to fire.

**Additives and contaminants - hazards and impacts:** The electrolyte in spent lead-acid batteries may contain up to 70 times the amount of lead found in the electrolyte of new batteries. Therefore, exposure to electrolyte from spent lead-acid batteries presents a greater hazard to health and the environment. If the spent lead-acid batteries are disposed in a landfill or illegally dumped, they may release lead and lead-contaminated sulfuric acid into the environment. This can pollute drinking water sources such as lakes, rivers, streams and ground water. If lead-acid batteries are burned in incinerators, lead can remain in the ash and be released into the air.

**Regulatory overview:** IDEM requires that shops recycle their used lead-acid batteries. If your shop sells batteries, you must post a sign informing customers of your requirement to accept their used batteries for recycling. IDEM also requires that you properly store your used batteries. In addition to IDEM's regulations, IOSHA regulates the storage and servicing of batteries, and DOT regulates transportation.

**Management responsibilities:** Listed below are the requirements pertaining to the sale and disposal of batteries as well as the requirements that you must follow to ensure that your batteries are properly serviced, stored, and recycled. Also listed are suggested practices that you should follow to ease your regulatory requirements and improve the environmental health of your shop.

**You must (sell, change or charge batteries):**

- Post a sign in a location that is conspicuous to your customers. The sign must be at least 8.5" wide by 11" high and the lettering must be at least 18-point type. (The sign included at the end of this section can be used to meet this Indiana Code requirement.) The written notice must indicate the following:
- Charge batteries only in areas designated for that purpose.
- Ensure that materials needed to flush and neutralize spilled electrolyte (i.e., a hose and baking soda) are readily available.
- Ensure the reinstalled batteries are properly positioned and secured in the vehicle.
- Provide a carboy tilter or siphon to employees who handle electrolyte.
- Ensure that vehicles are properly positioned with the brake applied before attempting to change or charge batteries.
- Ensure that the batteries' vent caps are functioning. Open the battery or compartment cover to dissipate heat.

- Prohibit smoking in the battery charging area.
- Take precautions to prevent open flames, sparks, or electric arcs in battery charging areas.
- Keep tools and other metallic objects away from the top of uncovered batteries.
- Provide suitable facilities within the work area for emergency drenching or flushing of the eyes and body.
- Ensure that the storage area is sufficiently ventilated to prevent the accumulation of explosive mixtures of gases if you store batteries. [IOSHA]
- Ensure that your used batteries are properly managed and recycled by doing the following:
- Within 90 days from the date you receive the spent lead-acid battery, the battery must be transferred:
  - Back to the wholesaler;
  - To a facility that collects lead acid batteries for delivery to a recycling facility; or
  - To an IDEM-permitted secondary lead smelter (if sent to a secondary lead smelter in Indiana.)
- When transporting used batteries that are not cracked or leaking, label them as follows depending on the type of batteries you are transporting: [DOT]

- - TYPICAL DESCRIPTIONS FOR COMMONLY USED BATTERIES- -

“Battery, wet, filled with acid, 8, UN2794, PGIII, Corrosive”

or

“Battery, wet, non-spillable, 8, UN2800, PGIII, Corrosive”

When transporting batteries that are cracked and/or leaking, label them as follows: [DOT]

“Battery fluid, acid, 8, UN2796, PGII, Corrosive”

If you dispose of spilled battery acid as a hazardous waste, follow the storage and disposal requirements listed in Chapter 3, and label the waste as follows to meet DOT requirements:

“Sulfuric acid, spent, 8, UN1832, PGII, D002”

**You should:**

- Properly store all spent lead-acid batteries in an area with some type of containment or in an area that provides a means to control and contains any battery acid spillage. If batteries are stored outside, a covered area needs to be provided to prevent snow and rain from entering the area.
- Request documentation from your transporter confirming that your batteries were delivered to permitted lead-acid battery recycling facility. It is your responsibility to ensure that your batteries are recycled. If the transporter improperly disposes of your batteries, you can be held financially responsible for the clean up costs resulting from the improper disposal.
- Store all lead-acid batteries on an impermeable surface such as coated concrete or asphalt.

**You should consider:**

- Requiring your customers to pay a **refundable** deposit on all batteries purchased.

This deposit is intended to encourage customers to bring their spent battery back to your facility for recycling.

- Storing your used batteries on a wire shelf and installing polyethylene spill trays **below** the shelf to catch any spilled acid.

**4.23 Florescentlight tubes and high-density lamps: (Universal Waste – not including halogen lamps):** Fluorescent light tubes and HID lamps contain small amounts of mercury, lead, and sometimes cadmium. Mercury may be ingested (this usually occurs when putting hands or other objects contaminated with white phosphor dust into the mouth) or inhaled, potentially resulting in damage to the central nervous system, kidneys and liver. Lead can also enter the body by ingestion or by inhaling lead dust. The effects of lead on the adult body include the following: problems with reproduction, digestion, and with memory and concentration; high blood pressure; nerve disorders; and muscle and joint pain. Both mercury and lead are even more dangerous to children because their bodies are more sensitive to these metals and because their bodies absorb more lead than do adults' bodies.

**Additives and contaminants - hazards and impacts:** There are no additives or contaminants associated with used tubes or lamps.

**Regulatory overview:** Historically, fluorescent tubes and lamps contained a sufficient amount of mercury to make them a hazardous waste when disposed. Some new tubes and lamps are now marketed as containing a reduced amount of mercury, presumably making them a non hazardous waste when disposed. However, it remains the generator's responsibility to ensure the correct hazardous waste determination is made and to manage the waste accordingly. If you are considering purchasing a new type of tube/lamp that is marketed as a non hazardous waste when disposed, you should request the analytical test results for the product (i.e., toxic characteristic leachate procedure, otherwise referred to as TCLP) from the vender. Ask the vendor to explain the TCLP results to you, or contact CTAP for assistance.

If your used tubes/lamps are considered to be a hazardous waste, there are two management options for handling your waste tubes and lamps. You may either recycle or dispose of them under the Universal Waste Rule or dispose of them under the hazardous waste rules.

The Universal Waste Rule is a modification of the hazardous waste rules, and is designed to reduce regulatory requirements by promoting environmentally sound recycling and disposal practices. The second option is to manage your used tubes and lamps under the hazardous waste rules. See sections 3.4 and 3.5 for more information on hazardous waste management requirements. Note that, for CESQGs, discarded tubes and lamps are not counted in determining your generator status provided the tubes are shipped off-site for recycling as a universal waste. If you throw the tubes and lamps in the trash, you must add their total weight to your monthly record for hazardous waste generation.

**Management responsibilities:** Listed below is the regulations that you must follow depending upon how your shop manages its used tubes and lamps. Also listed are suggested practices that you should follow to ease your regulatory requirements and improve the environmental health of your shop.

**You must:**

- Regardless of whether you follow the universal waste rule or the solid and hazardous waste rules, you must:
- Educate your employees on proper handling and emergency procedures associated with the waste tubes/lamps.
- Contain all releases of waste and residues.
- Make a hazardous waste determination on your used tubes and lamps and manage them accordingly.
- Ensure that all light tubes and/or bulbs used for general illumination are installed at least seven feet from the floor or work surface, or, if installed lower than seven feet, ensure that a fixture or lampholder protects the light tubes and/or bulbs with a guard. [IOSHA]
- If you manage your used tubes and lamps under the Universal Waste Rule, you must:
- Package both unbroken and broken tubes/lamps to prevent breakage and a release of contaminants.
- Label the tubes/lamps or the containers holding them with the words “Universal Waste-Mercury-Containing lamps” or “Waste Mercury-Containing Lamps” or “Used Mercury-Containing Lamps.”
- Have your used tubes and lamps transported to a universal waste collection center. A list of fluorescent tube and high intensity discharge lamps recyclers are available via IDEM’s web site or the Fax-On-Demand system. Note that under the Universal Waste Rule, you are not required to manifest your used tubes/lamps.
- Not accumulate and store used tubes/lamps for longer than a one-year period.
- Follow the hazardous waste rules (see Chapter 3) if you manage your used tubes and lamps as a hazardous waste.

**You should:**

- Recycle your waste tubes and lamps under the Universal Waste Management rule.
- Package your used tubes and lamps in their original boxes prior to transportation to avoid breakage. Broken glass and the residue within is a hazard to your employees, the transporter, and the recycling or disposal company’s personnel.
- Package your broken tubes and lamps separately in a sealed container.
- Label the boxes with the number of tubes and lamps contained within.

**4.24 Wipes:** Wipes (industrial shop towels, rags, paper towels, gloves, cotton swabs, etc.) are not hazardous unless they come into contact with hazardous materials or hazardous wastes.

**Additives and contaminants - Hazards and Impacts:** As wipes are used to clean up spills and remove oils, they become contaminated with automotive fluids and cleaning solvents. Many products used in the vehicle maintenance industry, such as engine degreasers, fuel injection cleaners, and brake cleaners and fluids contain hazardous solvents that are flammable (ignitable) and/or toxic if inhaled or adsorbed through the skin. Product material safety data sheets, (MSDS) should be reviewed to determine if products used at your facility contain hazardous materials.

**Regulatory overview:** IDEM regulates **disposable** wipes that are considered to be a hazardous waste. You must make a hazardous waste determination on your used disposable wipes.

If the products used at your facility contain any of the following constituents, then your disposable wipes, when contaminated, could exhibit hazardous characteristics or be a listed hazardous waste, and may be regulated as a hazardous waste by IDEM:

- Heavy metals such as arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver;
- Chlorinated solvents such as monochlorobenzene; 1,4- dichlorobenzene; 1,2 dichloroethane; 1,1-dichloroethylene; pentachlorophenol; methylene chloride; trichloroethane; trichloroethylene; tetrachloroethylene and any chlorinated fluorocarbons; or
- Toxic solvents such as benzene, toluene, xylene, pyridine, 2-ethoxyethanol, methyl ethyl ketone, and 2-nitropropane.

If the products used at your shop are a listed waste when discarded (i.e., contain a chemical or chemicals described on the list of listed wastes), your contaminated wipes will automatically be a hazardous waste when disposed. The list of listed wastes is available by visiting IDEM's web site.

Contaminated wipes that are **laundered** are not regulated as a hazardous waste unless they are used to clean up spills of hazardous waste or unless a hazardous waste is added to the container of wipes. They are, however, still regulated by IDEM's Office of Air Management, IOSHA and the Department of Fire and Building Services.

**Management responsibilities:** Managing your used wipes may be done in a number of different ways, depending upon the type of wipes that you use and the contaminant(s) that have been absorbed. Listed below are the management options you must follow. Also listed are suggested practices that you should follow in order to ease your regulatory requirements and improve the environmental health of your shop.

**You must (for laundered wipes):**

- Store contaminated wipes in closed containers to prevent the evaporation of any contaminants into the air. If the wipes are contaminated with flammable or combustible liquids, you must store the wipes in a container meeting the requirements of the Indiana Department of Fire and Building Services. Contact the Plan Review Division for more information. [IDEM and Department of Fire and Building

Services]

- Not use wipes to clean up spills of hazardous wastes. Wipes that are sent to a laundry are not regulated as a hazardous waste unless they were used to clean up spills of hazardous wastes. If your wipes were used for this purpose, they must be managed as a hazardous waste.
- Ensure that your storage containers are not accumulating free liquids in the bottom of the container. If the container has free liquids, transfer the free liquid into another container and manage by its hazardous classification. Laundries will not accept wipes containing liquids.

**You should (for laundered wipes):**

- Provide the commercial laundry with material safety data sheets for all products used at your facility.
- Recover as much free liquid from contaminated wipes as possible by wringing the wipes. Industrial laundries will not accept wipes containing any free liquids. Contain liquids wrung from wipes and manage these liquids with other hazardous or non-hazardous liquid wastes, whichever is applicable.
- Segregate contaminated wipes from your uniforms and other laundry items.
- Follow management practices for handling soiled reusable textiles outlined by the Uniform and Textile Service Association.

**You must (for disposable wipes):**

- Make a hazardous waste determination on your used wipes. If the wipes are a hazardous waste, you must manage them accordingly (see Chapter 4)
- Not air dry contaminated wipes to remove ignitable or toxic characteristics prior to disposal.
- Store contaminated wipes in closed containers to prevent the evaporation of any contaminants into the air. If your disposable wipes are contaminated with flammable or combustible liquids, you must store the wipes in a container meeting the requirements of the Indiana Department of Fire and Building Services. Contact the Plan Review Division for more information. [IDEM and Department of Fire and Building Services]

**You should (for disposable wipes):**

- Segregate hazardous wipes from other waste materials to avoid generating an increased volume of hazardous waste.
- Substitute less toxic commercial products for products that contain hazardous and/or toxic constituents to minimize the generation of hazardous wipes.
- Accumulate and store hazardous wipes in a drum that meets DOT requirements, with the DOT Class 9-hazard sticker placed on the side of the drum. When your drum is filled, label it to include the proper DOT shipping name for hazardous waste wipes:

“RQ, Hazardous Waste, Solid, n.o.s., Class 9, NA3077, PG III.”

(Note that you must do this prior to shipping your hazardous wipes, but are not required to meet DOT requirements while the waste is accumulating or being stored.)

**4.25 Sorbents (Includes spill clean-up materials and waste):** Sorbents (absorbent material such as pags, pillows and socks) are not hazardous unless they come into contact with hazardous materials or hazardous wastes.

**Additives and contaminants - hazards and impacts:** As sorbents are used to clean up spills, they become contaminated with the spilled material and generally exhibit the same hazards and impacts. You should review the spilled materials material safety data sheet (MSDS) to determine the hazards associated with the material that was spilled.

**Regulatory overview:** Your used sorbents and spill waste must be managed in one the following manners. The particular management option that you must follow depends on the type and extent of contamination, the quantity of contaminated sorbents generated per month, and whether the sorbents are recycled or disposed.

Note that the term “spill waste” includes sorbents as well as any contaminated soil, residue, debris, and articles from the cleanup of a spill or release of petroleum-contaminated materials. The term “petroleum-contaminated materials” includes spill waste that contains virgin or used petroleum such as: gasoline, diesel fuel, hydraulic fuel, crude or refined oils that do not contain polychlorinated biphenyls (PCBs), kerosene, and heating oils.

**Recycling petroleum-contaminated sorbents (and/or spill waste) under the used oil rule:** If your sorbents are contaminated with used oil or with a mixture of oil and other fuels, the sorbents may be burned for energy recovery under the Used Oil Rule. In order to comply with the Used Oil Rule, you must properly manage your oil-contaminated sorbents (i.e., don’t mix other wastes with these sorbents), and you must either recycle your sorbents or burn them for energy recovery in an approved apparatus. See the *Oil* Section in Chapter 4 for more information on the Used Oil Rule.

**Disposing of Contaminated Sorbents (and/or spill waste):** If you cannot manage your sorbents and spill waste under the Used Oil Rule (e.g., because of contamination with a waste other than used oil or fuels), you must make a hazardous waste determination and manage them accordingly. Sorbents that exhibit hazardous waste characteristics or are contaminated with a listed hazardous waste must be managed as a hazardous waste. See Section 2.8 for information on making a hazardous waste determination.

**Disposing of petroleum-contaminated sorbents (and/or spill waste):** You have the option of managing your sorbents and/or spill waste under the Used Oil Rule, as a hazardous waste, or as a non-hazardous waste (provided the material is not determined to be a hazardous waste). Petroleum-contaminated spill waste is complex and not well suited for vehicle maintenance shops. You should manage your oil-contaminated sorbents under the Used Oil Rule when possible. If you have a spill that results in your shops generating petroleum-contaminated debris in quantities large enough to require a decision be made on how to handle the waste material, and you do not wish to manage the material under the Used Oil Rule, contact IDEM’s Office of Land Quality, Industrial



Waste Compliance Section or CTAP for assistance.

**Disposing of sorbents and/or spill waste as a solid waste (i.e., with your regular trash):** If your used sorbents are not a hazardous waste, and they do not drip or accumulate free liquids (such as in the bottom of their storage container), you may dispose of them with your regular trash. Note that materials containing free liquids are prohibited from landfills. Also note that IDEM's air regulations prohibit air drying contaminated sorbents prior to disposal, and that mechanically wringing your sorbents may expose employees to the hazards inherent to the material that was spilled.

**Management responsibilities:** Listed below are the management options you must follow. Also listed are suggested practices that you should follow in order to ease your regulatory requirements and improve the environmental health of your shop.

**You must:**

- Not air dry contaminated sorbents to remove ignitable or toxic characteristics prior to disposal.
- Store contaminated sorbents in closed containers to prevent the evaporation of any contaminants into the air. If your sorbents are contaminated with flammable or combustible liquids, you must store them in a container meeting the requirements of the Indiana Department of Fire and Building Services. Contact the Plan Review Division for more information. [Department of Fire and Building Services]
- Follow the requirements of the Used Oil rule if you manage your wastes according to the rule. See the *Oil* Section in Chapter 4 for the information on the Used Oil Rule.
- Make a hazardous waste determination on your used sorbents if you cannot manage your used sorbents and/or spill waste under the Used Oil Rule. If they are a hazardous waste, you must manage them accordingly (see Chapter 3.) If your used sorbents and spill waste are not a hazardous waste, you are not required to follow those regulations.
- Ensure that the material does not drip, contain free liquids, or result in the accumulation of free liquids (such as in the bottom of their storage container) prior to disposing of them with your regular trash if your used sorbents or spill waste are not a hazardous waste.

**You should:**

- Manage your petroleum-contaminated sorbents and spill waste under the Used Oil Rule.
- Segregate used sorbents that are a hazardous waste from other waste materials to avoid generating an increased volume of hazardous waste.
- Accumulate and store hazardous sorbents in a drum that meets DOT requirements, with the DOT Class 9-hazard sticker placed on the side of the drum. When your drum is filled, label it to include the proper DOT shipping name for hazardous waste sorbents:

“RQ, Hazardous Waste, Solid, n.o.s., Class 9, NA3077, PG III.”

(Note that you must do this prior to shipping your hazardous sorbents, but are not required to meet DOT requirements while the waste is accumulating or being stored.)

**You should consider:**

- Purchasing sorbents sealed in porous fabric socks, pillows, or pouches that contain biomass-derived material such as cellulose or peat.

**Background on options to consider for purchasing biomass-derived sorbent**

**material:** Sorbents made from plant cellulose, such as cotton and wood fibers, are very effective in absorbing liquids. Biomass-derived sorbents have an absorbency ratio of 4:1 when compared to most alternatives. The absorbency ratio is five times greater than clay.

**4.26 Glass:** Check with your local landfill to be sure that they will take this material as a solid waste.

Perhaps you could reclaim this material through a glass broker as a recycled item. Provide personal protective equipment to all personnel who would be handling this material.

**4.27 Used oil (Includes any petroleum-based or synthetic oil that has been used, such as engine oil, sludge from used oil tanks, transmission fluid, refrigeration oil, compressor oil, hydraulic fluid, etc.):** One gallon of oil can contaminate up to one million gallons of water. The effect of oil on organisms can include genetic damage, structural deformities, reduced egg volume, and reproductive failure.



Virgin (unused) oil contains low levels of carcinogenic compounds, such as benzene and toluene. In addition to these compounds, oil also contains relatively high levels of polycyclic aromatic hydrocarbons, which may be absorbed through the skin of employees who are exposed to oil. Polycyclic aromatic hydrocarbons are directly linked to a number of types of cancer, including skin tumors. Shop personnel should avoid prolonged or frequently repeated skin contact with oil by wearing impervious protective gloves and by washing hands and other exposed areas thoroughly after contact. Because oil is a combustible liquid, it must be properly handled, and oil soaked clothing must be changed to avoid a fire safety hazard.

**Additives and contaminants - hazards and impacts:** As oil circulates through the engine, the oil may become contaminated with heavy metals, including lead. In addition, used oil is also contaminated with products of incomplete combustion, which contain a number of known carcinogens. High concentrations of lead may make the oil a hazardous waste. Oil may also become contaminated through contact with gasoline, which could make the used oil a hazardous waste due to benzene contamination and/or flammability.

**Regulatory overview:** Two environmental management options currently exist for collision repair and automotive refinishing shops with used oil. The first option is to recycle your used oil or to burn it for energy recovery under the Used Oil Rule. The second option is to dispose of your used oil, following all applicable solid and hazardous

waste rules. By managing your used oil under the Used Oil Rule (rather than following the solid and hazardous waste rules), you will lessen your regulatory requirements.

**Used oil rule (Recycling or burning for energy recovery):** Complying with the Used Oil Rule means that you do not have to manage your used oil or the sludge from your used oil tank as a hazardous waste. Even if the used oil to be recycled or fuel blended is contaminated with a hazardous material or components *from product formulation or through its intended use* (such as when contaminants mix with oil in the crankcase), the used oil is still regulated under the Used Oil Rule rather than as a hazardous waste. In order to comply with the Used Oil Rule, you must properly manage your used oil (i.e., don't mix anything other than waste fuels with your used oil), and you must either recycle your used oil or burn it for energy recovery. Oil that is intentionally or accidentally mixed with hazardous wastes must be managed as a hazardous waste.

If you mix small quantities of waste fuels with your used oil, you should check with your hauler to ensure that your used oil meets their specifications. You should also be aware that, depending on the flash point of your used oil, it may be subject to more stringent Fire and Building Services' and DOT requirements than would otherwise be required.

Note that, under the Used Oil Rule, both re-refining and burning of used oil for energy recovery are considered to be forms of recycling. Re-refining is the preferred method of managing used oil because it preserves our limited resources. However, in some instances, such as when you are disposing of sludge from the bottom of your used oil tank, or disposing of petroleum contaminated wipes, sorbents, or spill materials, burning the material for energy recovery is the better management option.

If you choose to burn your used oil in your own used oil furnace, be aware that there are additional rules that you must follow under the Used Oil Rule. Because small oil-burning furnaces are not as clean burning or as efficient as industrial furnaces, IDEM recommends that you send your used oil to a fuel blender rather than burning it on-site.

**Solid and hazardous waste rules (disposal):** Used oil that cannot be managed under the Used Oil Rule (i.e., because of contamination with a hazardous waste or other material) is subject to all applicable solid and hazardous waste rules. Under the solid and hazardous waste rules, you must make a hazardous waste determination and must manage your used oil accordingly (see Chapter 3 for information on managing hazardous wastes.)

If you determine that your used oil is not a hazardous waste, it is still prohibited from being sent to a solid waste landfill because these landfills do not accept liquid waste or waste that contains free liquids (i.e., wastes containing liquids that will readily pour.) Therefore, you must send your used oil to a facility that is capable of handling liquid waste or that can solidify the waste prior to disposal.

**Other regulations:** Regardless of whether you manage your used oil under the Used Oil Rule or as a solid or hazardous waste, there are Department of Fire and Building Services

and IOSHA regulations that you must follow. These regulations depend upon how you store your used oil and the quantity of used oil that you store.

**Inside storage tanks:**

- Limited to 13,250 gallons unless the shop has a sprinkler system or unless the shop has separate 1-hour fire rated control areas for each additional 13,250 gallons. Exterior walls do not have to be modified in order to meet the 1-hour fire resistant rating criteria. Therefore, a shop can designate the entire building as the fire control area if the quantity of oil stored does not exceed 13,250 gallons. (Fire and Building Services).
- Shops with sprinklers throughout the building are not limited as to the amount of oil that they can store inside the building (either in tanks or in drums.) (Fire and Building Services.)
- Must have secondary containment. A 4-inch high area/sill that surrounds the tank or drums is required in order to contain spills. This spill retention area must be cleaned out following a spill or when leaking oil accumulates. (Fire and Building Services.)
- Gasoline or other flammable materials should not be added to your used oil. Doing so may change the used oil's flash point, requiring that you follow more stringent requirements for inside storage. (Fire and Building Services.)

**Outside storage tanks:**

- Tanks must be diked or must have a 2-hour fire resistant rating. This spill retention area must be cleaned out following a spill or when leaking oil accumulates. (Fire and Building Services) Must be placed a minimum number of feet away from the building, the property line, and any right-of way. Contact the Plan Review Division to determine the specific requirements that you must follow. (Fire and Building Services) Label the drum with the words "Used Oil".
- Tanks or Drums- Outside storage areas must be graded to divert spills away from building or other exposures, or be surrounded with curbs at least 6-inches high and have appropriate drainage to a safe location for accumulated liquids. The storage areas must be protected against tampering or trespassing, where necessary, and must be kept free of weeds, debris, and other combustible material not necessary for storing used oil. (Fire and Building Services).

**Management responsibilities:** Managing your used oil may be done in a number of different ways. Listed below are the management options as well as the requirements for each of the available options. Also listed are suggested practices that you should follow in order to ease your regulatory requirements and improve the environmental health of your shop.

**You must:**

- Store your used oil in a tank (if you actually do store the oil in a tank) that meets the Indiana Department of Fire and Building Service's requirements for class I liquids (even though used oil is a class III(b) liquid). Note that the Indiana Department of Fire and Building Services defines "tank" as anything that holds more than 60 gallons. [Fire and Building Services]

- Not store no more than 13,250 gallons in drums. [Fire and Building Services]
- Instruct employees to clean hands and arms frequently if they are exposed to used oil and/or grease to prevent skin irritation. [IOSHA] Employees must not use gasoline to cleanse themselves or for other cleaning purposes. [IOSHA]
- Instruct employees to change oil soaked clothing, as it is a fire safety hazard in addition to being a source of skin problems. [IOSHA]
- Clean up spills promptly. [IOSHA and IDEM]
- Keep oil storage containers and aboveground tanks in good condition. Drums and storage tanks used to store oil cannot be rusting or leaking.
- Label all used oil storage tanks (and piping) or containers with the words "USED OIL"
- Develop a Spill Prevention, Containment and Countermeasure Plan if you store oil in tanks greater than 660 gallon or have accumulative storage capacity in excess of 1,320 gallons. Call CTAP for assistance.
- Report oil spills (see Section 3.8 and Section 5.5 for information on spills and reporting.)
- Not apply used oil as a dust suppressant.
- Not store used oil in surface impoundments (i.e., lagoons.)

**You must (if following Used Oil Rule):**

- Recycle your used oil or burn it for energy recovery in an authorized device.
- Not mix used oil with hazardous wastes. Note: that if you mix small quantities of waste fuels with your used oil, may require you to follow more stringent Fire and Building Services and DOT regulations than otherwise required.
- Determine the halogen content of the used oil by using generator knowledge or by using a test kit for halogens (available from safety supply dealers.) If the used oil contains more than 1,000 parts per million total halogens, it is presumed to have been mixed with a hazardous waste and must be treated as a hazardous waste *unless* you can demonstrate that the source of the halogens was not from mixing a hazardous waste with your used oil. To avoid managing your used oil as a hazardous waste, do not add solvents or anything else to your used oil.
- Ensure that the transporter has an EPA ID number for off-site shipments. You may transport less than 55 gallons of your own used oil (or oil that has been collected through a household do-it-yourselfer collection program) at any time to a used oil collection center or to your own aggregation point without an EPA ID number. *Note that an aggregation point is basically a collection center designed to accept small amounts of used oil and store it until enough is collected to ship it elsewhere for recycling. Aggregation points collect oil only from shops run by the same owner/operator and from individuals.*

**You must (if following the Used Oil Rule and burning used oil on-site):**

- Follow all of the above-listed requirements.
- Have a used oil burner with a maximum capacity of not more than 500,000 Btu/hr.

- Install the used oil burner in the garage area (not the shop's office) and in accordance with the regulations of the Indiana Department of Fire and Building Services. [Fire and Building Services]
- Vent the heater's combustion gases outside of the building. Note that the used oil burner cannot be connected to the heating ductwork. [Fire and Building Services]
- Burn only used oil that the shop generates or used oil received from households that bring their used oil to your shop.

**You must (if following the solid and hazardous waste rules):**

- Determine if your used oil is mixed with a hazardous waste. If the oil is considered to be a hazardous waste, it must be managed according to the hazardous waste rules (see Chapter 3).
- Managed waste as solid waste if the used oil is not found to be hazardous.

**You should:**

- Follow the Used Oil Rule.
- Send your used oil to a permitted re-refining facility rather than sending it to a fuel-blender or burning it in your shop's used oil furnace.
- Check with your hauler to ensure that they will accept the mixture if you add waste fuels to your used oil.
- Put designated drip pans under leaking vehicles while they are waiting to be repaired. Empty the designated drip pan when you move it from one vehicle to another or when the pan is half full (to avoid spills). Designate specific drip pans for used oil, antifreeze and other liquid wastes to avoid mixing the wastes.
- Drain and replace oil and other fluids in an area where there are no connections to the storm drain or the municipal sewer.
- Place oil collection/drip pans under vehicles and lubricating operations to contain oil spills.
- Place oil collection containers in close proximity to vehicle service areas. Reducing the distance used oil must be carried will reduce the likelihood of drips or spills reaching the shop floor.
- Scoop up oil spills using a squeegee and a dustpan or a shop vac, and pour the oil into your used oil tank or container. By cleaning up spilled oil in this manner, you will avoid generating and managing spill material clean-up waste. Remember that you must make a hazardous waste determination on spill material clean-up waste unless your shop is following the Used Oil Rule **and** the spill material is burned for energy recovery. (See Section 3 for more information on spills).
- Segregate the different types of oils (e.g., used brake fluid, transmission fluid, etc.) generated at your shop unless your oil recycling company advises otherwise. Used oil haulers have differing restrictions regarding the mixing of used oils.
- Inform your hauler of this before your used oil is picked up. Some haulers do not test used oil prior to picking it up if you know that your used oil has been contaminated with a substance that is not allowed by your used oil hauler. Rather, they take a sample from each shop for later analysis, if needed. Once the entire load reaches the refinery, the load is tested. If the load does not meet the requirements, the Service Company will run the small samples from each shop to determine who is responsible

for the contamination. The Service Company may then assess an additional fee to the shop responsible for contaminating the entire load.

**You should consider:**

- Starting an oil collection program to recycle used oil from household do-it yourselfers.

**Background on options to consider for starting a do-it-yourself (DIY) oil collection program:** The United States EPA estimates that millions of gallons of used oil are released into the environment each year by household do-it-yourselfers. By participating in a DIY oil collection program, you can help prevent oil waste from polluting the environment and can also demonstrate your commitment to customer service and your community.

Prior to starting a DIY collection program, you must contact the Plan Review Division of the Indiana Department of Fire and Building Services to ensure that you are following applicable regulations. Your shop must also follow the management standards of IDEM's Used Oil Rule, accept DIY used oil, and send the DIY oil to a recycler or burn it for energy recovery.

Many used oil transporters will pick up your used oil, including used oil that is collected from DIY, at no charge if you have a minimum of 200 gallons of used oil per pick-up. Some used oil transporters will also provide you with a double-walled oil storage tank and will train your staff in the proper collection of DIY used oil. Contact your used oil transporter to request additional information about participating in a DIY oil collection program.

Some suggestions for implementing a used oil-recycling program include:

- Offer special reusable containers to do-it-yourselfers. Avoid accepting other used oil containers.
- Use a separate drum or tank for do-it-yourselfer oil to avoid potential contamination of your own used oil.
- Visually inspect used oil brought in by do-it-yourselfers. Do not accept suspicious materials.
- Have the do-it-yourselfers sign a log with a statement verifying the material is used oil only.
- Post a sign and provide written materials describing your program.
- Include this public service and any other environmental efforts in your advertisements.

**4.27.1 Waste oil filters:** The base materials in regular sized oil filters (i.e., filters that fit most automobiles and light trucks) have no hazards or impacts. Larger filters, however, such as those used in heavy-duty vehicles, are likely to beterne-plated. Terne is an alloy of tin and lead, and is used to strengthen the shells of larger oil filters.

Lead can get into the body by ingesting it (this usually occurs when putting hands or other objects contaminated with lead dust into the mouth) or by breathing lead dust. The effects of lead on the adult body include the following: problems with reproduction, digestion, and with memory and concentration; high blood pressure; nerve disorders; and muscle and joint pain. Lead is even more dangerous to children because their bodies are more sensitive to lead's effects and because their bodies absorb more lead than do adults' bodies.

**Additives and contaminants - hazards and impacts:** When a used oil filter is removed from a vehicle, approximately one pint of oil may remain trapped in the filter. The used oil and sludge that remain in the filter may contain contaminants such as heavy metals that are picked up as the oil circulates through the engine. High concentrations of heavy metals may cause used filters to demonstrate hazardous waste characteristics, making the filters subject to hazardous waste regulations if the filters are not properly drained.

**Regulatory overview:** There are several management options for handling your regular size used oil filters. The regulations that you must follow depend on whether you properly drain your used filters and what you subsequently do with them (e.g., recycle, burn, discard.)

Properly drained filters are exempt from Indiana's hazardous waste regulations and may be disposed as solid waste. Undrained filters may be managed under Indiana's Used Oil Rule if the filters are recycled or burned for energy recovery. By following the Used Oil Rule, your shop can ease its regulatory requirements and reduce the environmental impact associated with disposal.

Undrained filters that are discarded are subject to all applicable solid and hazardous waste rules. See Chapter 3 for information on managing your hazardous wastes. Note that, even if your used oil filters are not considered to be a hazardous waste, they still cannot be sent to a landfill because of the restrictions on wastes containing free liquids (liquids that will readily pour). Instead, the filters must be managed under IDEM's solid waste rules and sent to a facility that is capable of handling liquid waste or that can solidify the waste prior to disposal.

Terne-plated filters that are properly hot drained and recycled are exempt from Indiana's hazardous waste regulations. Terne-plated filters handled in any other manner must be managed as a hazardous waste. See Chapter 3 for information on managing your hazardous wastes.

#### **Regulations for regular (Non-terne plated) used oil filters**

<b>Management option</b>	<b>Applicable regulation</b>
Properly hot drained	exempt from hazardous waste regulations
Recycled	used oil rule
Burned for energy recovery	used oil rule



Discarded	solid and hazardous waste rules
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**Management responsibilities:** As stated above, managing your used oil filters may be done in a number of different ways. Listed below are the regulations that you must follow for each of the management options. Also listed are suggested practices that you should follow to ease your regulatory requirements and improve the environmental health of your shop.

**You must:**

- Properly manage the oil drained from the filters (see the *Oil* section in Chapter 4 for information.)
- Puncture the filter anti-drain back valve or the filter dome end and hot drain the filters (if you choose to hot drain your filters). (The term "hot drain" means to immediately drain the filter after it is removed from a vehicle that is at or near the engine's operating temperature.); or
- Perform any other equivalent hot draining method that will remove the used oil so that the filters contain no free liquids. Equivalent methods include crushing or dismantling the filters.
- Either follow the requirements of the Used Oil Rule or determine if the filters demonstrate hazardous waste characteristics if you choose not to use the hot drain method.
- See the *Oil* section in Chapter 4 if you plan to follow the Used Oil Rule.
- Manage filters that demonstrate hazardous waste characteristics as hazardous waste. See Chapter 3 for information on managing your hazardous wastes and Chapter 5 for information on recordkeeping and reporting requirements.
- Manage terne-plated filters as a hazardous waste, unless they are properly hot drained and recycled.

**You should:**

- Follow the Used Oil Rule rather than the solid and hazardous waste rules (for oil that is drained from the filters.)
- Hot-drain your filters for a minimum of 12 hours.
- Store all oil filters in leak-proof containers to prevent spills.
- Label storage containers "Used Oil Filters".
- Recycle your used filters, rather than burning or discarding them. If you cannot recycle your used filters, burning them for energy recovery is preferred to disposal.
- Manifest all properly drained oil filters on a bill of lading to a scrap metal recycling facility.
- Maintain records regarding the transportation and recycling of used oil filters.
- Purchase only non terne-plated oil filters from your filter supplier.
- Call the manufacturer or supplier to ask if you are unsure as to whether the filters you are purchasing are terne-plated.
- Drain and recycle your terne-plated filters rather than managing them as a hazardous waste.

**You should consider:**

- Purchasing an oil filter crusher and/or shredder to recover any remaining waste oil and to reduce the volume of filters disposed and associated disposal costs.
- Using a service company to shred or crush your used filters to recover residual used oils prior to sending the filters to a scrap metal recycling facility.

**Background on options to consider:** Crushing a used oil filter is the most effective way to remove any remaining oil. Crushing also allows you to fit more filters into each drum, and, because many service companies charge you by the drum (rather than the weight of the drum or number of filters in the drum), your shop can reduce the transportation and/or disposal costs associated with used oil filters.

You may either purchase equipment to crush the filters yourself, or you may send the filters to a service company to have them crushed and then sent to a recycler. A list of oil filter transporters, recyclers, and crushing machine vendors may be obtained via IDEM's web site.

**4.28 General work area and housekeeping:****You must (for general work area) [IOSHA unless otherwise noted]:**

- Prohibit smoking and/or open flames in areas used for servicing motor vehicles. [Fire and Building Services]
- Ensure that all work areas are clean, free of slip or trip hazards, and well lit.
- Ensure that aisle spaces are provided and are kept clear.
- Ensure that aisle spaces are a minimum of 48 inches wide. [Fire and Building Services]
- Provide employees with restrooms, including washing facilities.
- Cover or guard any pits or floor openings.
- For walkways elevated more than 48 inches, provide guard rails. In cases where the walkway is adjacent to dangerous equipment, pits or tanks, the walkway must have standard railing and toeboard regardless of its height.
- Ensure that stairs are at least 22 inches wide, have a nonslip finish, and are made from sturdy materials. Standard railings are required on the open sides of all exposed stairways and stair platforms. Note that portable ladders are not to be used as permanent fixtures.
- Mark metal ladders with "CAUTION! Do not use around electrical equipment."
- Not allow employees to eat in areas where hazardous chemicals are stored or used.
- Require employees to properly wash their hands after handling any chemical products.
- Have your shop's means of egress (exterior shop doors) marked with highly visible Exit signs.
- Provide appropriate fire extinguishers, and train employees in their use. [Fire and Building Services]
- Inspect, maintain and test portable fire extinguishers.
- Train employees annually on the use of fire extinguishers and the hazards of fire

fighting if employees are expected to extinguish small fires .

- Not block or hinder access to fire extinguishers.
- Not hang items (jackets, hoses, etc.) from fire extinguishers.

**You should:**

- Install a cross connection control device (backflow preventer) wherever you have directly connected any chemical (even soap) or waste to the drinking water supply. This device prevents contaminated water from being siphoned back through the pipes, potentially contaminating the entire drinking water supply. Note that cross connection control devices are required for car washes.
- Make sure your shop has adequate electrical outlets. Extension cords should only be used temporarily.
- Laminate or otherwise protect posters and signs located near solvent sinks to prevent them from deteriorating.